JULY, 1957

American Engineer

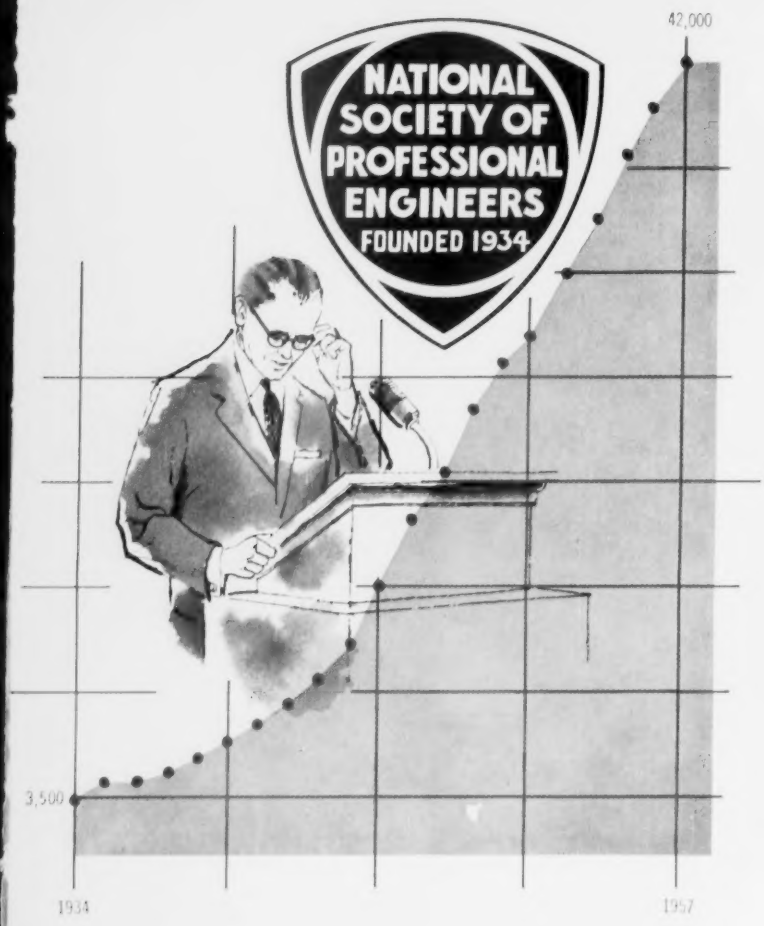
IN THIS ISSUE . . .

NSPE: 3-Level Leadership

by

GARVIN H. DYER, P. E.

President, National Society of Professional Engineers



The individual member must assume the most responsibility, says Mr. Dyer

The Exploding Universe of the Engineer by James C. Zeder, Vice Pres., Chrysler Corp.

A Review of the Honeywell Election by J. T. Ludwig, P. E., Minnesota SPE

A New Approach to Professional Unity by Morris D. Hooven, P. E.

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SURVEY REPORT:

ENGINEERS EMPLOYED BY PRIVATE PRACTITIONERS

A comprehensive survey of the status of engineers employed by consulting engineering firms has recently been completed and is now available for distribution. The 40-page report contains basic statistical data on salaries, hours, fringe benefits, geographical distribution, size of firms, registration status, overtime pay practices, distribution of engineering employees by grades (including separate salary tabulations for each grade) and characteristics of the consulting firms.

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ENGINEER-EMPLOYER CRITERIA

The *Criteria for Professional Employment of Engineers* has now been published in booklet form and is being circulated widely to management, government officials, educators, associations and other groups. It is equally important that individual professional engineers be familiar with the content of the new publication.

The major purpose of the *Criteria* is perhaps best summarized by the continuing language from the introduction:

"As most engineers are employees, professional recognition is most significant in its application to the employed engineer-employer relationship. The professional status of the employed engineer, in all of its manifold aspects, needs to be fully recognized by the employed engineer and his employer if full and complete professional growth of the engineering profession is to be developed."

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Criteria for Employers

- **Recruitment Policies**
- **Indoctrination**
- **Technical Development of the Individual**
- **Administrative Development of the Individual**
- **Professional Development of the Individual**
- **Personality Development of the Individual**
- **Company Practices**
  - **Working Conditions**
  - **Salaries**
  - **Engineering Titles**
  - **Personnel Practices**
  - **Termination Policies**

Criteria for Individual Engineers

- **Application for Employment Interview**
- **Indoctrination**
- **Technical Development of the Individual**
- **Administrative Development of the Individual**
- **Professional Development of the Individual**
- **Personality Development of the Individual**
- **Company Practices**
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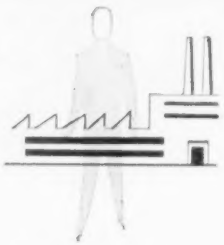

Appearing after more than a year of intensive research and study, this book is a major publication in the engineering industry field. Brought together in compact form are a wealth of pertinent facts about the background and present situation bearing on the future professional development of engineers employed in all types of industry, and the related effects on all other professional engineers. 128 pages • 6 illustrative charts • 11 tables of economic data • fully documented by more than 250 references • bibliography and index.

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- The Causes of Dissatisfaction
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"We must measure our educational effort as we do our military effort. That is to say we must measure it not by what will be easy and convenient to do, but what is necessary to do."

—Walter Lippmann

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Letters to the Editor

Values . . .

Dear Editor:

The letter by F. Gordon Yates (June, 1957, issue of AE) echoes a familiar refrain. Personally, I am getting a little tired of engineers who bemoan their lack of professional status and low pay.

I am convinced that engineers' salaries, like other economic factors, are determined in the market place. If physicians are paid more than engineers it is because the public places a higher value on their services. Mr. Yates quotes an average annual salary for physicians of $24,000 per year. Assuming this figure to be correct (which I doubt), it is after all only an *average*. There are some physicians earning $7,000 per year, some earning $100,000 per year.

In the engineering profession, there is also a large spread in salaries (see the recent EJC survey). In general, the differences in salaries are a reflection of the relative value of these engineers to their companies and to society. *Moreover, the best engineers prefer it that way!*

My advice to Mr. Yates is in the form of a challenge: If you think you are worth more, start hunting for a better job. Let's see what value the market places upon your services!

E. J. Carron,
Detroit, Mich.

NSPE Education Fund? . . .

Dear Editor:

When I finished my freshman year at the University of Minnesota Institute of Technology studying for an electrical engineering degree, I stopped off one day at Monroe high school in St. Paul. It was here where I had received my "foundation" training for college. I stopped to offer thanks to my many wonderful teachers at Monroe. My army experience during World War II plus my first year in college had set in true perspective (apparently for the first time) my education and, indeed, education in general.

While I thanked many of my teachers at Monroe, I also must confess I criticized them, too. I criticized even more the *system*; the *amount* of education I *could* have had, but did not receive. When I spoke these ideas to my wonderful physics teacher (and I mean *teacher*, a master of the art), she said to me sadly, "Bob, you had it good. You should see what it is now!" That was back in 1946!

I mention the above only to show you magazine's contributors of articles and letters to the editor that I appreciate, as an EIT, the enormity of the educational fix we're in. Possibly I see parts of it even better since I went from an "old-school" type school to a public high school (a type which is all too typical, especially throughout the east).

. . . Early training from my parents (there's no doubt in my mind that my father led my vocation to engineering unknowingly; he was a salesman for many years, and good in math); the formal education I received . . .; the educational guidance of the rest of my family—: these . . . gave me sufficient foundation to bear up under the superstructure of an engineering education. The three years at Monroe, which fell between this foundation of primary education and the superstructure of college education, acts like a layer of silty soil in the subbase of a roadbed or a structural foundation of a building. It gives way but usually bounces back because both the sand soil beneath it is good, and the superstructure over it is carefully designed to take the instability of this layer of silty soil.

I've related these thoughts of mine only to prove that I see as the majority of engineers see. I think as do the senior engineers who would just as soon face reality instead of keeping it in the closet. Here's my point: let's *do* something about it!! *Thinking* is not *doing*. These are two separate processes of the human being. Maybe that's really our problem in the shaky beginnings of our engineering profession:

The engineer usually thinks out the problems of the building or construction project. The contractor actually does the building or construction.

Do you see the difference? Man's soul is made up of intellect and will. One does the thinking, one does the acting. One uses the human brain for thought, analysis, conclusions; the other uses the body in general for acting out those conclusions developed by the intellect. Is this so strange? Maybe to some. Because they never get to the acting stage on any of their projects. They act primarily because of habit, not conscious thought. This is very difficult for many persons, especially engineers, to understand.

When I started reading Mr. Carroll Billmyer's letter in the May issue of American Engineer, I thought, "Here, at last, is an engineer who wants to do something about our educational chaos!" But, no, I was sadly mistaken. I jumped to a conclusion before I finished reading his article. His was just another engineer's thought on education. However, Mr. Billmyer is to be commended for acting upon his thoughts by sending you a letter. That's what I like: The action part.

As I was going to say, I thought Mr. Billmyer was about to say that his manner of thinking about education was that *you*, the American Engineer, take the lead in *securing an education for our next generation* so that engineering talent may be found and secured. What should be *done* on the part of NSPE regarding our national education problem?

Here are some of my thoughts on this issue: The very *minimum* we should do as an organization, I believe, is to set up a foundation fund for engineering education. The purpose of this foundation would be just what the engineering definition for "foundation" is. It would provide the funds needed to set up engineering education on a new "foundation." Engineering scholarships, I think, would be best. These would tend to re-educate the public on what the professional engineer believes and intends to promulgate. We must set the *example* if and when the painful process of *public re-education* takes place regarding both engineering and education. It would show the public that we intend to *practice* what we preach. You know, a man is measured by what he *does*, not by what he *thinks*, both by society and by God.

The funds for the educational fund would come from the membership. These are the ones who appreciate the necessity of such an undertaking and, who actually would receive most of its benefits. So this will be a measure, I think, of the average registered engineer in America. Whether he is *ready* for professionalism. Is he?

When professionalism becomes a concept of engineering in the *true sense of the word*, then each and every engineer will be not only contributing to his own engineering welfare but also for his engineering profession at large. Is he doing this now? Is the average NSPE member giving even one per cent of his income to the profession for which he stands? I wonder.

Bob Hopkins, Jr., EIT
San Diego, Calif.

Washington Society of Professional Engineers—Annual Meeting. October 11-12, 1957. Benjamin Franklin Hotel, Seattle, Washington.

NSPE Fall Meeting—October 18-19, 1957. Bismarck, North Dakota.

North Dakota Society of Professional Engineers—Annual Meeting. October 18-19, 1957. Bismarck, North Dakota.

Tallamy Appointment . . .

Dear Editor:

Re your article in the June issue on Bertram Tallamy, the President's Highway Administrator: The engineering profession of this country should certainly come forth with a chorus of praise of the fact that a professional engineer has been given the recognition of appointment to a top level Federal job. It is about time the Government woke up to the fact that engineers are something more than mere technicians, to be employed only at the lower levels of the Civil Service structure.

The appointment of Mr. Tallamy is indeed fortunate for the progress of the Federal Aid roadbuilding program. The position he occupies is indicative of the greatly increased responsibility the professional engineer will have in the very near future. Many of us can remember when the administration of highway projects was in the hands of political people who were chiefly interested in dipping into the public trough.

Charles O. Benbing,
Chicago, Ill.

Society Testifies Before Senate On TVA Competition

The following is testimony presented by the National Society before the Subcommittee on Flood Control-Rivers and Harbors, Senate Committeen on Public Works, on one aspect of S. 1869, which NSPE opposes.

We are here today to present the Society's views on only one aspect of S. 1869. We refer specifically to the provision appearing at lines nine and ten of page ten of the bill, which would authorize the Tennessee Valley Authority to perform engineering services in connection with the construction of a generating plant or other facilities in which TVA has any interest whatsoever. It would appear that the language would permit TVA to furnish engineering and design services for any private or local agency which was to build and operate power facilities or any other facilities with a tie-in to TVA operations.

Indeed, at hearings on Senate Bill 2373, 84th Congress (pp. 207-215), which was substantially similar to the bill presently under discussion, and which contained identical language authorizing TVA to perform engineering services, it was pointed out by Senator Hruska that the engineering services which TVA would be permitted to perform would not necessarily be limited to facilities which TVA expected to acquire, but could be provided as well if merely the purchase of the output of a plant was intended.

It is the considered opinion of the National Society of Professional Engineers that such a broad grant of authority to TVA which would allow it to render engineering services for others constitutes an unwarranted interference with the normal functions and operations of private consulting engineers who have been and are available for the rendition of such normal professional activities. We believe, and we think the members of the Committee agree, that the Federal Government should not compete with its own citizens in the furnishing of materials or services to nonfederal agencies or persons, except under the most extreme or emergency conditions. Such extreme or emergency conditions which would justify the assumption of this broad authority by TVA are not present in this situation. Referring once again to the 1955 hearings on S. 2373, it was pointed out in answer to the TVA contention that the provision in question would contemplate the providing of only those engineering services necessary to permit the right kind of plant to be built on the right schedule and in an economical way, that TVA was arrogating to its own engineering staff something superior by implying that no one else in the profession could perform those engineering functions.

The implication which results from those discussions is, of course, that the situation which would necessitate the rendition of engineering services by TVA, does not in actuality exist, and thus there could be no justification for the rendition of services by the Federal Government when private firms

(Continued on page 42)

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PROFESSIONAL NEWS IN CAPSULE FORM

A Roundup of Late Events for Professional Engineers

R. W. Kunkle Appointed To Position at Institute

Richard W. Kunkle has been appointed manager of Program Development of Midwest Research Institute, Dr. Charles N. Kimball, president, announced recently.

His responsibilities will include liaison between the Institute's technical staff and its sponsors and direction of the Institute's expanding program of technical symposiums. MRI is a non-profit institute conducting basic and applied research for industry, government, and other sponsoring groups in science and engineering.

Mr. Kunkle is a member of NSPE.

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Inaugurate Dean Carson As New AIIE President

Dean Gordon B. Carson of the Ohio State University College of Engineering is the newly inaugurated president of the American Institute of Industrial Engineers.

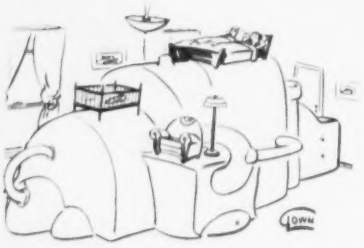
In his inaugural remarks Dean Carson, an NSPE member, asserted that in today's world the probability of a team making great discoveries and advancements is greater than that of an individual genius.

The new president compared the foundations of engineering to a tripod. He named the three legs as energy, man power, and materials and stated that industrial engineers deal with the most neglected leg—manpower.

Mining Conference Planned in October

Arrangements are developing rapidly for the annual meeting of the Society of Mining Engineers and the Southeastern States Mining Conference scheduled October 15-18 at Tampa, Fla.

Highlighting four days of technical sessions and field trips will be a tour through the bone valley phosphate mining field and processing centers adjacent to both Tampa and the heart of Florida's famed citrus growing highlands.



"Just think, Martha, another six months and I'll have it perfected."

Need Creative Engineers Graduating Class Told

Although routine engineers are a must in this technological civilization, creative engineers are required to keep United States technology in a top international leadership position. Dr. Joseph Barker told the 79th annual graduating class of Rose Polytechnic Institute.

He said there are "too few" creative engineers available today and pointed out that some of the emphases in a typical engineering education "tend to hinder their development during college years."

Dr. Barker, who delivered the commencement address, was awarded an honorary degree of Doctor of Engineering. He is chairman of the board of Research Corporation, a non-profit foundation in New York which supports scientific research in colleges and universities.

More Than 900 Attend Retrieval Symposium

More than 900 scientists, engineers, administrators, documentalists, and librarians attended the Information Retrieval Symposium sponsored by Western Reserve University in Cleveland, Ohio, recently. Registrants came from thirty-five states and five foreign countries.

Representatives from all branches of science, engineering, humanities, social sciences, medicine and law witnessed a broad range of working systems, in current use, for recording, storing and retrieving information ranging from hand machine sorted cards to systems using computers or computer-like devices. Sponsored by thirty professional, industrial and governmental organizations and held in the exhibition hall of Cleveland's Masonic Auditorium, the conference was a startling eye-opener to the majority of those in attendance.

Annual ARBA Conference Scheduled October 28-30

The fifth annual National Highway Conference for County Engineers and Officials, sponsored by the American Road Builders Association, will be held at French Lick, Ind., on October 28-30.

One thousand delegates are expected to attend the popular meeting to hear the nation's top county highway experts discuss "Trends" as related to county and local highway administration. Lewis A. Lush, superintendent of highways of Sangamon County, Illinois, and president of the ARBA County and Local Roads Division will preside.

Cornell to Offer New Engineering Course

Food Facilities Engineering will be a new major offered in the School of of Hotel Administration, it has been announced.

New students interested in preparing themselves for work in the design and fabrication of food service facilities will be accepted by the school next September. The program will also be open to upper class students already enrolled in the school, a number of whom have expressed an interest in it.

Ohio Student Wins Engineering Award

Thomas J. Johnson, of Cuyahoga Falls, Ohio is the 1957 recipient of the Robinson Engineering Award, made annually to the outstanding senior in the University of Akron's College of Engineering by the Robinson Clay Product Co., of Akron, Ohio.

The Award, in recognition of outstanding accomplishments in the undergraduate field of engineering, was made to Johnson by L. G. Diebel, Robinson Clay's chief engineer.

Johnson was graduated in June with a bachelor of mechanical engineering degree. During his academic career, he was a member of the student branch of the Ohio SPE. He joined the engineering staff of the Seiberling Rubber Co., of Akron, following graduation.

Engineering Secretarial Students Are Graduated

The first engineering secretarial students in the nation were graduated in June from the Business Training College in Pittsburgh, Pa.

A small class of three students are the first to complete the two year engineering secretarial course established in 1955. It is the only such course in the country. Twenty-two juniors will be graduated in 1958. BTC's engineering secretarial course was patterned after the successful medical secretarial course which has been given at the college for more than thirteen years.

The engineering secretarial course features extensive training in engineering terminology, complete mastery of secretarial skills, instruction in physical science, chemical experiments, slide rule, drafting, blueprint reading and visual aids. Guest lecturers address the students on engineering subjects during the entire two year program and field trips are arranged. This training enables the graduates to serve as administrative assistants and aides to busy engineers.

During the summer students are placed in engineering and professional positions enabling them to gain additional terminology.

Need Engineers As Patent Examiners

The Patent Office still needs engineers and scientists to serve as patent examiners according to The New York Patent Law Association. The Association reports that while delays in the processing of patent application in the Patent Office have been somewhat reduced during the past year, it still takes about ten months before a new patent application is first examined, and an average of 3½ years before a patent is issued.

The key to the log jam is more patent examiners—technically trained men and women who evaluate applications for patents in the technical fields.

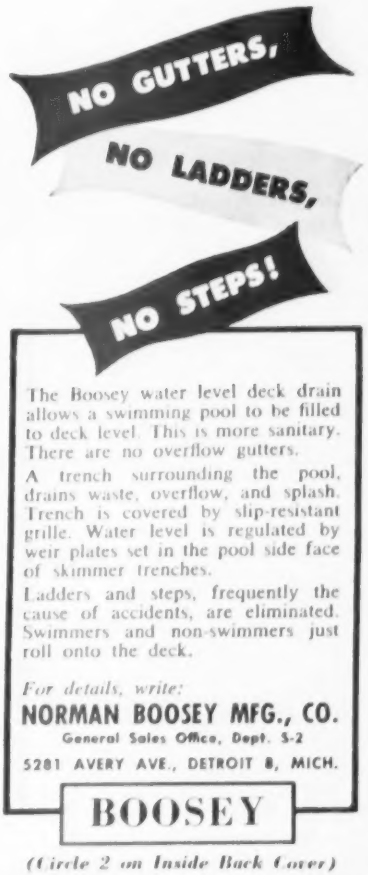
Men and women holding college degrees in engineering or applied science, or a degree with a major in chemistry or physics, or with certain combined credits in these fields, are eligible for appointment as patent examiners without examination, upon application to the Commissioner of Patents in Washington, D. C.

High School Students Participate in RCA Plan

Twenty senior students at the Moorestown, N. J., High School were "Graduated" recently by the Radio Corporation of America upon completion of a special orientation course conducted by RCA to acquaint them with career possibilities in the field of electronics engineering.

"Diplomas" were five-tube radio receivers which the students constructed as part of the laboratory exercises of the 12-week course, conducted one night a week at the Moorestown Engineering Plant of the RCA Missile and Surface Radar Department. The course, which included lectures, demonstrations, and laboratory instruction, was conducted by RCA electronic engineers, participating on a voluntary basis.

Selected on the basis of achievement in science and physics and interest in electronics, the twenty Moorestown seniors received definitive lectures on the various fields of engineering specialization.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Captain E. A. Verpillot Retires From Old Post

Captain Emil A. Verpillot, deputy chief engineer of the Department of Marine and Aviation since 1947, retired from that organization in June after thirty-six years service with New York City. Following a brief vacation, Captain Verpillot will join the Wigton-Abbott Corporation, of Plainfield and Newark, N. J., as assistant to the president.

He was cited by former Secretary of the Navy James Forrestal for his technical competence and administrative abilities displayed during construction of Alaskan Naval Bases.

Mr. Forrestal said that Captain Verpillot's "sound judgment and untiring efforts to coordinate the activities of forward areas with those of the Continental United States . . . contributed materially to the successful prosecution of the war."

Captain Verpillot, an NSPE member, also received New York State's Distinguished Service Cross for his wartime accomplishments in the Navy.

Edward Sabin to Serve As Campaign Chairman

Edward D. Sabin, an NSPE member, will serve as general chairman of the $1,500,000 building campaign of his alma mater, the Tufts University College of Engineering. Dr. Vannevar Bush, also a Tufts graduate, will be honorary chairman of the campaign.

Sabin, who is vice president and partner of the Wait Associates, Inc., of New York, is a 1920 honor graduate of Tufts.

Position Available At Washington State

The State College of Washington is inviting applications for the position of director of the Division of Industrial Research. The research program utilizes an annual budget of over $500,000 and has a permanent staff of about forty engineers and scientists.

Interested persons are asked to write: Dr. Mark F. Adams, Secretary, Director of Industrial Research Advisory Committee, Technology Building, W. S. C., Pullman, Wash.

J. N. Landis Nominated As President of ASME

A San Francisco engineering executive, James N. Landis, has been nominated as president of The American Society of Mechanical Engineers. He will be installed in office, after a letter ballot of the membership, during the ASME annual meeting to be held in New York in December, to serve for a term of one year.

Current president ASME is Dr. William F. Ryan, a member of the National Society.

Mr. Landis is vice president of Bechtel Corporation, and a past chairman of both the San Francisco Section of ASME and of its Metropolitan Section in New York in addition to having held many other responsible offices through the last twenty years.

Engineering Students Selected for COSTEP

Sixteen college and university engineering students have been selected for summer employment by the Public Health Service under the Commissioned Officers Student Training Extern Program (COSTEP), Acting Surgeon General W. Palmer Dearing has announced.

This is the first year that engineering students have been included in the COSTEP, one of the Service's programs designed to attract young people to careers in public health.

M. D. Hooven Receives Honorary Doctorate

Morris D. Hooven received the honorary degree of Doctor of Science at the 11st commencement exercises of Newark College of Engineering. He was the seventh person to receive the degree since the college first granted honorary doctorates in 1919.

According to the citation read at the excercises, Mr. Hooven's "professional competence, his consideration for his associates, and his able leadership led to promotions to positions of ever-increasing responsibility, until today he is the Electrical Engineer of Public Service Electric & Gas Co., with the very important responsibility for engineering and designing the electrical portions of the company's generating stations, switching stations, and substations.

"Despite the demands on his important, responsible day to day position, he has given freely of his time, talents and energy to serving both the engineering profession and engineering education . . ."

Active in many organizations, Mr. Hooven is a member of NSPE, chairman of the Engineers' Council for Professional Development, and immediate past president of the American Institute of Electrical Engineers.

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AIEE Elects Walter J. Barrett As New 1957-58 President; List Other Officers

The American Institute of Electrical Engineers has elected NSPE member Walter J. Barrett, of Glen Ridge, N. J., as its 1957-58 president, it was announced at the Institute's recent annual meeting.

Mr. Barrett, who is with New Jersey Bell Telephone Company, Newark, and other officers will begin terms on August 1.

Vice presidents elected were Benjamin R. Teare, Jr., dean of engineering and science, Carnegie Institute of Technology, Pittsburgh, Pa.; Herbert W. Oetinger, executive assistant, Duke Power Company, Charlotte, N. C.; Albert G. Johnson, chief engineer, Omaha Public Power District, Omaha, Neb., Orien A. Gustafson, manager, installation and service engineering, Pacific Northwest District, General Electric Company, San Francisco, Calif., and Gordon F. Tracy, head of the electrical engineering department, University of Toronto.

Directors elected were Edwin W. Morris, Westinghouse Electric Corp., Los Angeles, Calif.; William R. Clark, Leeds & Northrup Co., Philadelphia, Pa., and Julius C. Strasbourger, Cleveland Electric Illuminating Co., Cleveland, Ohio.

L. F. Hickernell, chief engineer, Anaconda Wire & Cable Co., Hastings-on-Hudson, New York, was elected treasurer.

Applications for Postdoctoral Awards Invited by National Science Foundation

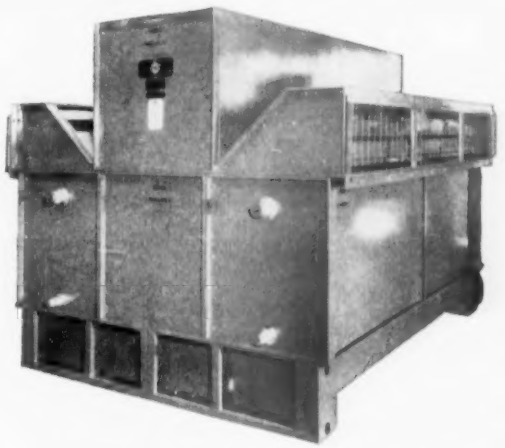
Applications will be accepted through September 3, 1957, by the National Science Foundation for a second group of postdoctoral fellowships to be awarded during 1957, both in the Senior postdoctoral and regular postdoctoral programs, Alan T. Waterman, foundation director, has announced. Fellowships will be awarded in mathematical, physical, medical, biological, engineering and other sciences. Names of successful fellowship candidates will be announced on October 16 and 17, 1957.

To be eligible for these awards, candidates must be citizens of the United States with special aptitude for advanced training and must hold the doctoral degree or have the equivalent in training or experience. In addition, candidates for the Senior postdoctoral program must have at least five years experience beyond the science doctorate.

Fellows will be selected on the basis of ability as evidenced by letters of recommendation and other evidence of attainment. Candidates' qualifications will be evaluated by carefully chosen panels of scientists under arrangements made by the National Academy of Sciences. Final selection of Fellows will be made by the National Science Foundation. Annual stipends to a maximum of $10,000, adjusted to match as closely as feasible the regular salaries of the award recipients, will be awarded under the Senior program, and the recipients of these awards will engage in study or research in an accredited nonprofit institution of higher learning in the United States or abroad.

Applications and further details concerning the Senior postdoctoral program may be obtained from the Division of Scientific Personnel and Education, National Science Foundation, Washington 25, D. C.

Applications for the regular postdoctoral fellowships may be obtained by writing to the National Academy of Sciences-National Research Council, 2101 Constitution Avenue, N. W., Washington 25, D. C.



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American Engineer

The Magazine of the Registered Professional Engineer

VOLUME TWENTY-SEVEN NUMBER SEVEN

NSPE: 3-Level Leadership

By GARVIN H. DYER, P.E.,

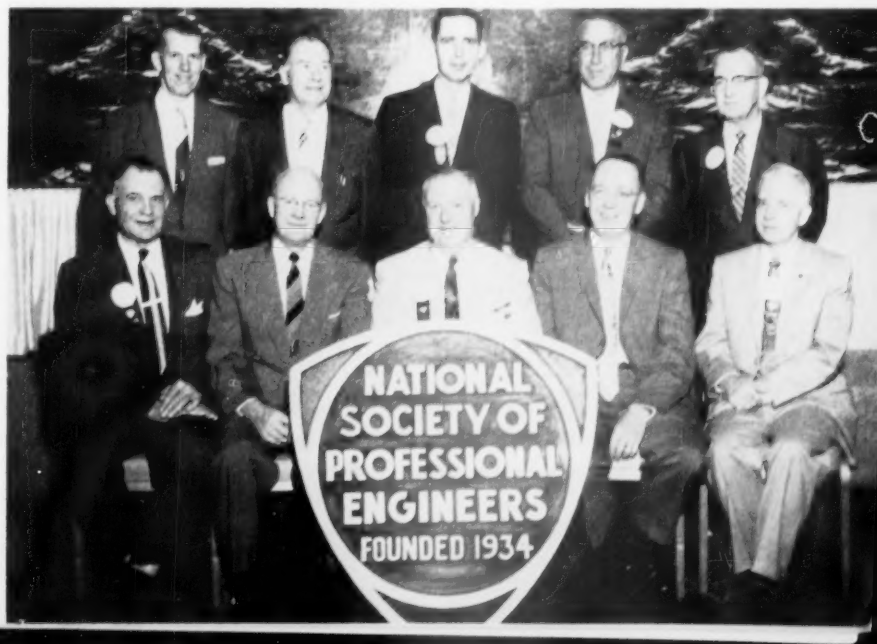
President, National Society of Professional Engineers

ONE of the unfortunate aspects of participating in the work of a large organization is the difficulty a president faces in ever making personal contact with more than a small percentage of the total membership. It is, therefore, a welcome opportunity to have the use of these pages in the AMERICAN ENGINEER to express my deep gratitude and appreciation to the professional engineers throughout the country who have so honored me by the presidency of the National Society of Professional Engineers. In accepting this office, I do so with the very definite feeling that the accomplishments of my predecessors have made the task before us during the coming year one of immense challenge in terms of service to the profession and to the general public welfare.

Indeed, the scope and extent of the challenge of service for our Society increases year by year. A good place to see and feel growth of NSPE accomplishments and objectives was the annual meeting this year in Dallas. The committee reports given at this meeting ranged over the spectrum of NSPE activity. One could not help but compare this broad and complex field of Society interest with the small beginnings of only a few years ago. I believe the committee reports and other matters considered at the 1957 annual meeting would make up a comprehensive picture of the problems currently before the engineering profession. In the various sessions at Dallas, the officers and members of the National Society were heard in discussion on model engineering laws, ethical standards for engineers, public relations programs, engineering education, the problem of unionization among engineers, and a full agenda of other matters. The theme of the Dallas meeting was centered around the problems of young engineers.

Have no doubts about it—our professional society is a going concern, and an ever growing one. At the same time, however, as the officers and directors of NSPE are well aware, we are faced with a number of major problems, some of which are directly connected with the growth and expansion of the Society in recent years.

One of these problems is that of stimulating interest and participation in Society objectives on the part of the individual member. This problem is, in large measure, a chapter-level problem. But it cannot be merely shrugged off as something that should be handled by the chapters alone. NSPE has always been a three-level organization. This multi-level structure is a source of great strength in making the Society a true expression of the desires and attitudes of its membership. These desires and attitudes, voiced in the local chapters, are transmitted up through the state societies, and ultimately are reflected in the



Society officers for the 1957-58 administrative year. Seated, l. to r.: Lindley R. Durkee, Mercer Island, Wash., vice pres., Western Region; Immediate Past Pres. Robert J. Rhinehart, Little Rock, Ark.; President Garvin H. Dyer, Independence, Mo.; Allan H. Kidder, Philadelphia, Pa., vice pres., Northeastern Region; and Clark A. Dunn, Stillwater, Okla., vice pres., Southwestern Region. Standing, from l. to r.: Paul H. Robbins, Washington, D. C., executive director; Russell B. Allen, College Park, Md., treasurer; John B. McGaughy, Norfolk, Va., vice pres., Southeastern Region; W. L. Hindermann, St. Paul, Minn., vice pres., North Central Region; and Harry G. Kennedy, Charleston, W. Va., vice pres., Central Region.

policy decisions at the national level. The National Society in turn, through its officers, directors, and staff members, offers guidance to the local and state affiliates in carrying out a variety of projects.

The observance of National Engineers' Week is an outstanding example of three-level cooperation in planning, developing and executing a broad-scale program. In this annual affair, the National Engineers' Week Committee originates the theme for the Week, obtains national publicity, and offers the state and local affiliates a selection of promotional material. Each of the local chapters plans its own program for the Week. In these local programs, the individual members take an active role. They give talks before civic and other groups, set up displays, contact newspapers and periodicals, and arrange for radio and TV time. Interest in National Engineers' Week on the part of the individual members is quite high, in part, at least, because we have managed to develop the proper mixture of national guidance, and state and local participation.

But there are other areas of Society activity in which the amount of membership interest and participation is considerably less than that involved in National Engineers' Week. Many chapters, for example, do not make adequate use of the materials prepared by the National Society and available free or at a small "cost" charge. This leads directly to the situation so often observed by NSPE officers and directors as they visit the various chapters—namely, that many of the members are not aware of the activities undertaken in their behalf by the National Society. A poorly informed member is apt to be an inactive member. And inactive members are a roadblock in the way of chapter, state society, and National Society progress.

In a military organization, the problem of keeping the troops informed is a relatively simple one. The necessary information is passed on down the chain of command and each level of the hierarchy is responsible for informing the people below. But in a professional society where all effort is strictly on a volunteer basis, the problem of passing on information evolves into what can be described as essentially a public relations enterprise. Our National Society must plan and develop ideas and methods for bringing its activities and objectives before each individual member. These activities and objectives must then be implemented by some sort of state society and local chapter projects. It is in this activity that the individual member comes to participate in the work of his professional society. The amount and quality of this individual member participation eventually determines the value and accomplishments of the overall organization. A national organization cannot really act or expect to be heard if it does not have a national "participating" membership.

The National Society has developed a variety of printed material, programs, and general information. We are now at the point where we must get these programs implemented at the local level, and get the information we have into the hands of those who will use it. The real value of the available material is the extent to which it is utilized at the local level. It is the responsibility of all state and chapter officers to carry through on these programs and see that they are implemented to the fullest degree. The importance of this phase cannot be overstressed.

Thus, the building up of a more informed membership as to National Society activities and objectives is, I believe, one of the important projects which will have to be undertaken by our professional organization. It is a three-level project, but it must be guided and inspired from the national level.

Good public relations, it has been said, is good performance, publicly appreciated. The phrase "good performance" would, I believe, quite accurately describe the numerous studies and reports made by NSPE over the past several years. Operating within stringent budgetary limitations, these published studies have given wide circulation to the point of view of the professional engineer regarding certain conditions of engineering employment. Take, for example, the executive survey reports made by the Professional Engineers Conference Board for Industry. The first four of these published reports were widely distributed throughout industry, and the publicity resulting from them brought much favorable attention to the National Society. The Conference Board has now completed a fifth survey report entitled "Career Satisfactions of Professional Engineers in Industry." This report, based on extensive personal interviews with engineers employed in industry, is designed to bring out the non-salary career satisfactions and motivations of engineers at three stages of professional experience.

There are no lack of other projects completed by the National Society that can be used as "tools" for generating membership interest and participation. The published report entitled "A Professional Look at the Engineer in

A view of the Board of Directors taken at the recent annual meeting in Dallas, Texas.

Industry" is a comprehensive analysis of the problem of unionization of engineers in industry, and should be used in chapter discussions wherever an engineer union situation develops. The negative approach of merely being against engineering unions and adopting resolutions against them is not the solution. We need to have membership participation in local programs, however small and informal, that will serve to build up positive attitudes in bringing out the professional engineers' point of view.

One example of positive activity is the preparation of a kit by the Engineer-in-Industry Subcommittee to help the state societies and local chapters hold industrial conferences. By taking advantage of the material in this kit, local affiliates can draw upon a wealth of ideas that will help in the organization of successful conferences on engineer-union situations.

THE whole question of unionization for engineers is based on the manner in which engineers regard themselves—whether they look upon themselves as identified with labor or with a profession. The public does not award professional status to a group without a concerted effort on the part of that group to deserve such recognition. NSPE can take no little pride in the fact that it has worked continuously for professional recognition since its founding. Our Society has, therefore, contributed greatly to the fostering of professional attitudes among individual engineers. It is this spirit of professional development that will prove stronger than anything else in keeping the engineering profession away from the siren song of labor union organizers. Giving a young engineer an opportunity to grow and develop in the full aspects of professionalism is a positive activity, and one that will insure his understanding of how the concept of unionism is incompatible with the true professional outlook.

A view of the new NSPE building located at 2029 "K" Street, N. W., in the heart of the Nation's Capital.

The concept of professionalism must be implanted in the undergraduates at our engineering schools to the point where they will become enrolled with a registration board as EIT's, and will become members of NSPE immediately upon graduation. This means a strong program at the state and local chapter levels wherein our members will spend the necessary time with the students and the professors to develop this feeling of professionalism.

Membership activity at the local chapter level is vital to the creation of the feeling of professional development on the part of the individual engineer. The members must be given the opportunity to serve in a local unit which justifies their membership. Chapter and state officers have the responsibility for working up activity programs which challenge the membership in terms of service to the public and to the profession. In their search for guidance, the chapter and state officers will look to the National Society. Our responsibility at the national level is clear and evident. We must be prepared to carry out a broad-guage leadership program which will bring Society activities and objectives right back to the chapter level.

The NSPE membership increase in recent years indicates the extent of the interest in a professional society among engineers in industry, education, government, private practice, and other fields. If this membership curve continues, NSPE will, in a very few years, find itself representing a far larger percentage of the engineering profession. We must all pledge ourselves to maintaining this membership increase. Membership programs at the chapter level are of the utmost importance in reaching the many engineers in each community who are willing to join NSPE if some one is willing to ask them to join.

In the near future engineers are going to take part in some of the greatest achievements in human history. Man is about to move out beyond the atmosphere of the planet earth, and engineering knowledge and skill will play the key role in this development. Our membership increase should keep up with the numerical growth of the profession, and our Society objectives should likewise be held up to a level in keeping with the increase in responsibility that engineering will share along with technological progress.

Through the programs of our National Society the stature of the profession can be elevated to its proper level, and only by the elevation of the profession can the economic conditions of the individual engineer be raised to the proper status. The sooner we realize that there is no short-cut to these objectives, and that the only way we can raise ourselves is to elevate our profession, the sooner we will attain our goal.

During the coming year we must rededicate ourselves to the ideals upon which our National Society was founded. In all our projects, we must resolve to keep the ideal of service always before us—service to the profession and to the public.—***End.***

Things Have Changed . . .

The Exploding Universe of the Engineer

By

JAMES C. ZEDER,

Vice President—Engineering, Chrysler Corp.

ONE of the cardinal rules of any well-planned engineering project is to pause from time to time to do three things: first, to look back and reappraise what has been accomplished; second, to analyze the present circumstances and problems; and, third, to use the past and the present as a basis to anticipate future needs and trends.

In brief, this procedure enables us to give *direction* to our efforts. Furthermore, it increases our understanding by allowing us to free ourselves momentarily from the specific problems of the present, and to view the entire project as one vast panorama that embraces past, present and future. From such a vantage point, we are able to detect our errors and omissions.

I believe we can gain much by using this technique to examine the engineering profession in terms of where it has been, where it is now, and where it is likely to go in the future.

Even though we are comparative newcomers to the professional world, we certainly have been around long enough to have a past. Actually, we have as much of a past as some of the graybeard professions like law and medicine, if you choose to measure the past in terms of progress rather than in the mere passage of years. For, time itself is meaningless unless it is filled with accomplishment.

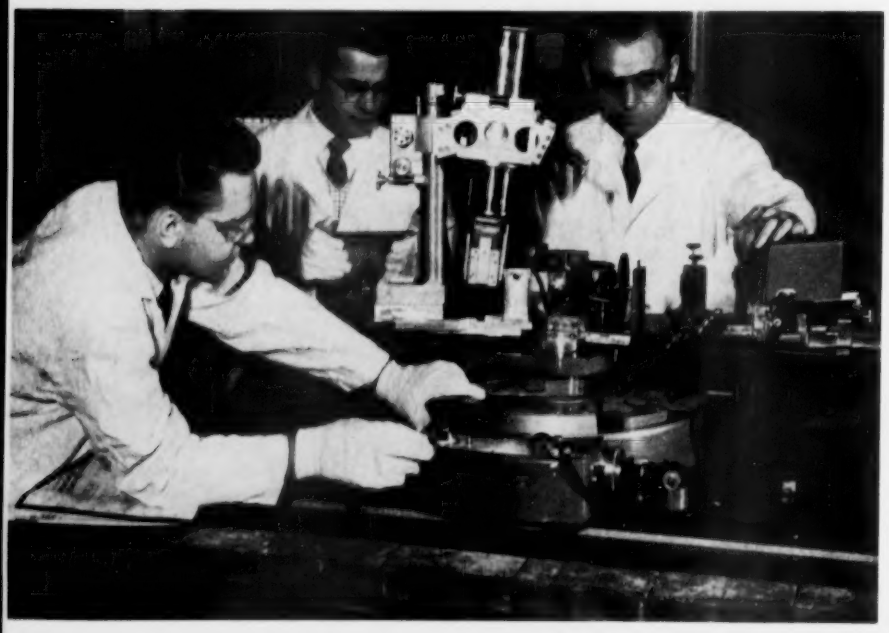
It would be tiresome for me to review the engineering accomplishments we have made during the last century. Many readers very probably were responsible for some of them; and all are surely familiar with the enormous technological advances we have made.

There is abundant evidence on all sides that we have done our jobs well. The ingenuity and creativeness of engineers is visible in everything from guided missiles to automatic dishwashers, from analogue computers to cigarette lighters. There isn't a man, woman or child in our land who doesn't benefit every day from the machines or the methods we have devised.

It is small wonder, then, that today engineers enjoy a position of prestige and respect in the business and social world.

How have we managed to make such tremendous progress? It is an ironic and paradoxical fact that the very trait which has made possible our past accomplishments is today preventing us from enjoying fully the benefits we have earned. That trait is single-mindedness, an ability to bring all of our faculties to bear on a specific engineering problem, the capacity to exclude from our consciousness everything save the problem at hand.

In the beginning, when there was so much to be accomplished in engineering, when the horizons were virtually unlimited, this single-mindedness was a priceless asset. It enables us to surge forward at a breath-taking pace, sur-



The "exploding universe of the engineer." An x-ray spectrometer designed by General Electric Company engineers at the Atomic Energy Commission's Hanford, Wash., plutonium plant is examined before putting lead shielding in place.

The device is so sensitive it can detect changes as small as a billionth of an inch in the distance between crystal facets. Checking it are (left to right) M. J. Sanderson, D. C. Kaulitz and W. V. Cummings, GE engineers who designed the double diffraction spectrometer.

The spectrometer is used to measure submicroscopic damage suffered by solids exposed to chain reaction heat and radiation in an atomic pile. Object of these studies is to aid in finding new atomic furnace elements that will stand up longer.

mounting one engineering problem after another and creating more and more machines which made the lot of our fellow man happier, healthier, and more prosperous.

We concentrated so intently on making machines that we came to be thought of as robots—a sort of commodity that was extremely vital but was, nevertheless, not quite human and individual.

Things have certainly changed! We have gained recognition because of the very impact our machines have made on society. But in my candid opinion, we, ourselves, are not yet fully aware of the many implications—indeed, the duties—that attach themselves to leadership of the kind now held by engineers.

With a few outstanding exceptions, it may be said that our new responsibilities, our new prestige, has almost been thrust upon us. It is not something which we have consciously fought for; nor have we as a group undertaken a concerted effort to live up to our responsibilities.

I say this mindful of the fact that many engineers are exceptions to this general statement. But they are the forerunners, the pioneers who are blazing the trail for the great mass of engineers in the ranks. I firmly believe that we are only taking the first, faltering steps over the threshold of a new era which will see the engineer's influence broadened even more.

So it would appear at present that many of us are something like the army privates who are ordered to volunteer for work details. We find ourselves almost to our bewilderment, in positions of authority in areas other than engineering.

It has been my experience that too often the initiative in placing engineers in these new areas comes from management itself. As a matter of fact, it has sometimes been my rather difficult chore to persuade a capable engineer on my staff to relinquish his engineering post to take up broader duties at the engineering-management level.

What, then, is the position of engineers today? In brief, they are mighty important in all fields of business. The complex technology they have created has also created new needs for their particular skills. I can't think of one operation in any industry that isn't affected to some extent

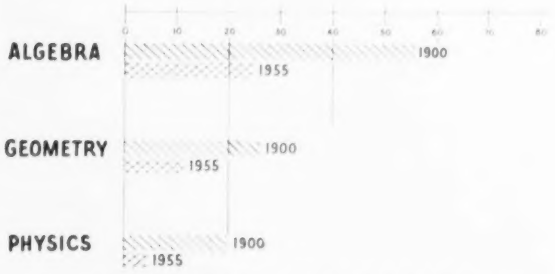


Chart shows the percentage of high school students studying math and physics in 1900 and in 1955.

by engineering operations. It follows, therefore, that there is a vital need for engineers in everything from market research to production, from advertising to cost analysis, from general administration to forward planning.

Engineers are, at this point in their evolution, firmly entrenched in the management team. Present indications are that they will be even more so in the future. Let me give you an example. Some time ago, the Chrysler Institute of Engineering awarded masters' degrees to a group of young automotive engineers who had spent two years studying with us.

President Colbert was the principal speaker at the commencement exercises. Here is what he said about these graduates: "*Our greatest need and most valuable resource is men like you!*" I can assure you that he didn't overstate the case.

Long before they received their diplomas, these young men were sought after by various operations within the corporations as hungrily as a horse-player in a strange town seeks out a bookmaker. And it wasn't only the engineering operations which tried to enlist their services. Nearly every activity in the corporation put in a bid for them.

While we are considering the *present* role of engineers in industry, let me inform you about our method of train-

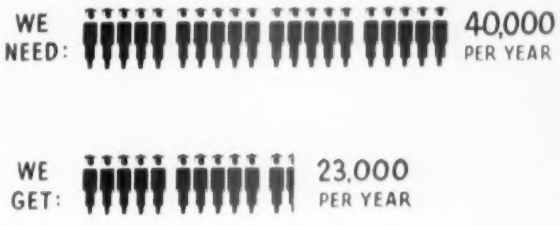


Chart shows number of engineering graduates each year and estimated number needed.

ing beginning engineers at Chrysler Institute. We have had to modify our curriculum drastically since the Institute was founded in 1931. At first, students were exposed only to engineering subjects in the classrooms, and their orientation programs were limited to tours of duties in the laboratories and divisions. But we soon learned that such training was inadequate. We would be falling short of our goal to prepare these young men for positions of importance by stressing engineering training to the exclusion of other subjects. The result is that today these young men may leave a class on thermodynamics or differential equations and walk across the hall to a classroom where they will be instructed in industrial relations or business administration. The same philosophy of broad training has dictated a broadening in their work assignments. These days, a student will complete a few weeks in a laboratory and then be assigned to answer technical correspondence, work in our Product Planning Section or assist a specialist in public relations. And, of course, extreme emphasis is placed in human relations, both in the classrooms and in the field.

My personal observation of the effects of our approach has prompted me to be somewhat critical, at times, of the engineering courses offered by some of our institutions of higher learning. Some of them are presenting the same fare that they offered in pre-World War I days. A few may be bound by tradition, and conservative to a fault. If so, they are out of tune with the times; they continue to believe in the obsolete philosophy that they have done their job well if they instill only technical knowledge in their students.

A couple of years ago, incidentally, I observed that my son, Dick, was using the same textbook in one of his engineering studies that I had used in 1922. And this is the same textbook that my brother, Fred, used in 1909!

Mr. C. Raymond Kraus, general staff transmission engineer at Bell Telephone Company of Pennsylvania, adjusts television camera for transmission of picture over standard telephone cable facilities in narrow band TV demonstration. The engineer is industry's "important man."

Now we all know that there are certain fundamental engineering truths—laws that will apply as much for centuries hence as they applied centuries ago. Nevertheless, it seems to me that the retention of identical textbooks during the same fifty-year period that has seen such explosive, such drastic changes in our engineering thinking is unusual. It suggests a static viewpoint by educators that may be out of step with the tempo of the engineering profession. I should think that revisions would be necessary, if only to correlate the subject matter with new concepts, and to reinterpret these fundamental laws in their relations to fields of research just now opening up.

I have, however, little patience with the many highly vocal critics of our education system who do not take into account the limitations under which our educators operate.

I don't have to look any further afield than my own University of Michigan to see how intelligent, farsighted, and dedicated educators are sometimes crippled in carrying out what they know to be absolutely vital programs.

I have spent a good many hours in the architectural abomination that formerly housed the university's automotive laboratory. Compared with the beautiful contemporary building which has replaced it, the old wooden shed was a figurative "black hole of Calcutta." Its passing will be mourned by no one, least of all the university's officials.

Now I mention the new laboratory because it illustrates dramatically another point of my theme—the role of today's engineer *outside* of industry.

The old building was erected in 1885, less than ten years after General Custer's last stand at the battle of the Little Big Horn, and seven years *before* the Duryea brothers' first gasoline buggy ran successfully. It would appear that it was outmoded from the time the first class convened, yet it continued to be used into the atomic age!

Everyone who is at all familiar with the university's administration and faculty realizes perfectly well that they did their utmost to get authorization for new buildings. Their efforts extend back through the years. But it is a sad fact that oftentimes our educators get short shrift when they take their petitions to the legislature. It is also true that sometimes our legislators are so harried, and so pressed, that they are physically incapable of attending to each of the many requests which are presented to them annually.

They are, nevertheless, the elected representatives of the people, and as such respond when the people speak. And that's exactly what happened here. A group of people, who had good reason to be alarmed about the engineering school facilities, decided to ally themselves with the university officials who had been fighting a valiant battle to get new buildings.

Who were these private citizens? The answer should be a source of pride to the engineering profession, for they were almost all engineers! They banded together in a citizen's committee (called the Industrial Committee for the University of Michigan Engineering Laboratories) and undertook a spirited and concerted effort to bring about the much-needed expansion. It is noteworthy that the group had representatives from virtually all automobile manufacturers.

To the best of my knowledge, this is one of the outstanding instances of engineers having joined forces spontaneously—and outside of their professional societies—to work for the ultimate good of their profession. I hope it

(Continued on page 18)

Lehigh University's new Fritz Engineering Laboratory, above, was dedicated October 14, 1955. The author says schools and industry must work hand-in-hand more than ever before.

Engineering Employment Practices Digest

A short digest of a monthly bulletin published by the National Society of Professional Engineers in the interest of advancing cooperative relations between professional engineers and their employers. To regularly receive the complete publication which is distributed widely to industrial, commercial and educational organizations, write the NSPE, 2029 K St. N.W., Washington 6, D. C.

✓ **For a comprehensive report on the important survey, "Career Satisfactions of Professional Engineers in Industry," refer to the NSPE Board meeting story in this issue.**

* * * * *

✓ *Also important—from the Dallas meeting—adoption of the Engineer in Industry Subcommittee's recommendation on engineer-management communications (see page 37). Other plans adopted by the Board in the employment practices field refer to reaching engineering students for professional indoctrination and explanation. The Board also approved an NSPE policy favoring clarification of a pending Taft-Hartley amendment so professional employees of construction contractors cannot be swept into trade unions over their objections.*

* * * * *

✓ A Committee on Salaries of the Conference of Municipal Public Health Engineers, reports salaries for engineers in this field well below those paid other members of the profession. In 1952-54 the median salary was $1,000 below the median for county and municipal engineers, and $2,400 below the median for all engineers. Starting salaries in local health agencies in 1956 ranged from $4,250 to $4,650, compared to $5,040 reported by engineering schools for the same year.

* * * * *

✓ **Recent NLRB decisions affecting engineers—at Puget Sound Power & Light Co. (State of Washington), an election will be held to determine wishes of engineers on collective bargaining. Seattle Professional Engineering Employees Association (ESA) seeks to represent small group of professional employees. A surveyor was found non-professional by NLRB, and professional status was denied two senior load dispatchers, even though they hold professional degrees.**

* * * * *

✓ *At Combustion Engineering, Inc., Chattanooga Division, the union, Combustion Engineers Association, withdrew its petition after an election was ordered. The NLRB ruled that only ninety-five employees were professional, contrasted with 285 non-professionals, and ordered two voting units.*

* * * * *

✓ A petition by a local of American Federation of Technical Engineers, AFL-CIO, to represent engineers at Commercial Castings Co., Los Angeles, was dismissed because it covered only tool designers. The Board said an almost equal number of design engineers would have to be included in the voting group. A distinction cannot be made between the two groups, the Board said, and both are professional. Note: only twelve per cent of the tool designers have engineering degrees, fifty per cent of the design engineers have engineering degrees. According to NLRB, the discrepancy exists because of the relative infancy of the special field of tool designing and the lack of courses in the engineering schools.

* * * * *

✓ **In other labor relations developments—professional employees at Standard Oil, Chicago, rejected a unionization bid by vote of 13 to 2. Tool designers, junior tool designers and detailers in tool design department, A. C. Spark Plug Div., GMC, Milwaukee, voted 16 to 13 against a union. UAW lost at Temco Aircraft, Grand Prairie, Texas, 537 to 475 among white collar and technical workers. Professional employees had been excluded from the unit. Office Employees International Union plans to call itself, "Office and Professional Employees International Association," in a bid for professional employees' votes.**

* * * * *

✓ *Report from recent ESA convention. A split among the engineering unions is reported with the formation of a new federation called, "Engineers & Scientists Guild." The new group, to hold an organizational meeting this fall, will represent those unions which favor inclusion of technicians and other nonprofessionals. Several of the larger ESA unions are said to be planning on joining the new group. The ESA group voted to increase annual dues from $6 to $8 per member, with permission for the executive board to go to $9, if necessary. Joseph Amann and Al Orth were re-elected president and vice president, respectively.*

A Story of Importance . . .

Professionalism and Unionism–A Review of the Honeywell Election

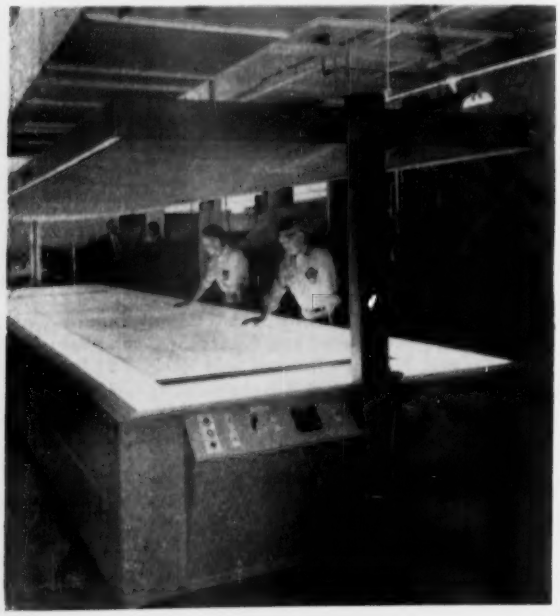
By J. T. LUDWIG, P. E.,

President, Minnesota SPE's Engineers-in-Industry Section

THE recent election among the engineers and technicians in the Twin City area plants of the Minneapolis-Honeywell Regulator Company has received nation-wide attention. The question before the voters was which union, if any, should represent them for purposes of collective bargaining. The overwhelming rejection of the collective bargaining principle is believed by many to represent a major trend away from union concepts for professionals. Those involved rejected both a traditional industrial union and an engineers' union with whom they had previously been affiliated. To better understand the factors at issue a brief review of the historical background will be helpful.

It should be emphasized that this commentary is limited to the unionization of professional engineers and their aides. It does not concern organized labor in general, which has had its greatest effect in the areas of production and maintenance employees.

The first factor to consider is our national labor legislation. Up to 1947 we had the Wagner Act; since then, the Taft-Hartley Act. Through the efforts of the National Society of Professional Engineers and others, the Taft-Hartley Act contains a special rule for professional employees. This rule provides, in essence, that the professional employees shall not be combined with other employees in the same unit for purposes of collective bargaining unless the professionals vote favorably on such combination. In the previous Wagner Act, professionals had no such protection against being swept into a factory union of production or other workers.



One faction of ESA members, the author points out, would have technicians such as those shown here included in the same collective bargaining units as professional engineers.

The Honeywell union, the Federation of Honeywell Engineers, was formed in 1945 from several diverse groups within the company. Some groups wanted the traditional type of labor unionism and were on the verge of a national CIO affiliation at the time. Other groups wanted improved communications and better grievance procedures but without all the usual characteristics of trade unionism. Still others wanted a defense against inclusion in a production and maintenance union; and, under the Wagner Act, then in effect, the only defense was to be organized with a separate bargaining agent. The FHE was essentially a coalition of these three differently motivated groups.

At first the new union had few of the militant characteristics of the usual labor union. As time passed, these characteristics were inevitably developed. Strikes were held in 1950 and 1955, although they had little effect on the negotiations each time, and trade union labor leaders were hired as presidents starting in 1953.

Another interesting facet was the formation of a national congress of similar unions, the Engineers and Scientists of America in 1952. The Federation of Honeywell Engineers was active in its conception and its president, since its founding, is a Honeywell engineer on leave. In recent years there have been two factions in ESA divided by the question of including technicians in the same collective bargaining units with the professional engineers. The trade unionist type of union, which FHE became, has supported inclusion of the technicians. Some of the ESA unions are of the so-called professional type, believing in purity—having only professional employees within their scopes. Among the trade unionist type, the Engineers Association of Arma left ESA last year to become a local of the IUE-CIO.

The published program of the Engineers and Scientists of America includes the following activities, many of which it has yet to accomplish:

1. **Qualification of every member individually as to his professional status.**
2. **Approval or sanction of all technical and scientific education.**

3. **Approval of all engineering licensing laws.**
4. **A sign of recognition to the qualified members.**
5. **A code of ethics.**
6. **Prohibition against unqualified practice of engineering.**
7. **Education of the public to deal only with the qualified engineer.**
8. **Collective bargaining for minimum salaries of engineers.**
9. **Separation of professionals from technicians in collective bargaining units.**
10. **Publication of technical articles.**

In summary, ESA seeks to "become the sole and unquestioned source of professional qualifications."[1]

These objectives are apparently to be achieved exclusively by ESA with apparent disregard for the efforts of other groups such as NSPE, EJC, ECPD, and the technical societies.

Last year the Federation of Honeywell Engineers formally considered disaffiliation from ESA without a simultaneous affiliation elsewhere. Negotiations with the UAW had been in progress for about a year. At this time a group of professional engineers informally prepared a petition for decertification of FHE to be circulated if it moved further in the trade union direction by leaving ESA. The required two-thirds vote for disaffiliation was not achieved; only about sixty per cent of the members voting were favorable. The membership at that time and throughout the last few years was about half of those represented. Since the vote was insufficient to leave ESA, the decertification petition was not circulated.

This year the FHE leadership proposed affiliation with UAW as a local simultaneously with the ESA disaffiliation. Again an independent decertification petition was prepared. On February 25, the union members at the meeting (thirty-two per cent of the employees concerned) voted about five-sixths in favor of the UAW. The decertification petition, in the form of individual post cards, was mailed to each employee represented by the union, and soon these cards were being returned by the signers. This group, soon to become known as the decertifiers, served notice of this action on the company, advising them not to bargain with FHE. The company, on the basis of the decertifiers' action, filed a petition with the National Labor Relations Board requesting a government-supervised election to determine who, if anybody, was the professional and technical employees' choice as a collective bargaining agent or agents. Two days later the decertifiers, in accordance with their prior public notice, formally filed the decertification petition on behalf of the professional employees. This petition had the additional strength of the signed post cards from substantially more than thirty per cent of the professional employees. Hearings on the company's petition and the decertifiers' petition were consolidated by the NLRB and these hearings were conducted simultaneously on both petitions.

The NLRB called the various parties, the Federation-UAW, the company, and the decertifiers, together for informal conferences aimed at reaching consent on the election procedure without a formal hearing to be reviewed in Washington. ESA came to these conferences as an intervenor, an interested party on the basis of merely a token showing of interest but without anywhere near the thirty per cent signatures required to allow them to veto any consent agreement by the three principal parties in interest.

Early in the hearings, the local NLRB officials, contrary to the demands of the UAW, ruled that any consent election agreement reached in the informal conference must provide for a separate determination by the professional employees as to whether they wished to be combined with the technicians in the same unit for purposes of collective bargaining.

Most of the issues concerning the election were resolved in the informal conferences. After a few weeks, however, a stalemate was reached on the question of the student employees' right to vote as part of a collective bargaining unit. At this point a formal hearing was begun. After one day of this hearing, the UAW consented to the election on the basis of the students' voting, as had been proposed by the company. An election date was set, and the campaign began in earnest.

The company's campaign was accurately summarized in the *Minneapolis Sunday Tribune* as follows:

[1] L. P. Wilton, "Suggested Solution for Engineers Organizing Problems," *The Engineer and Scientist*, V. 5, No. 1, p. 4, January-February, 1957.

"Sounding board" types of organizations often are popular with engineers in large firms.

"In a sense, what happened was that the company posed the issue before its employes—do you trust us? A vote for the union, the argument ran, actually is a declaration of lack of faith, that the individual employe wants an 'outsider' to intervene in his working relationship with his supervisor or with management.

"The question rarely was put purely on the issue of loyalty—that union membership for the professional engineer is incompatible with his loyalty to the company.

"In its campaign against the union, the company placed the burden of persuasion and argument principally upon the supervisors. In engineering work, each supervisor has an intimate, personal relationship with the working engineers and technicians; often the supervisor-employe team works in tandem because of close friendships and social intermingling.

"When a supervisor discussed the union issue with his group, he did so not only as a management representative but also as a close friend."

The decertifiers campaigned from a position of having no direct financial gains hinging on the outcome. It was clearly evident to all, that while the company and the unions had strong self-interests, the decertifiers were without this bias. The principal issue raised by the decertifiers was "Can the engineers and scientists wholeheartedly support the philosophy, methods, and tactics of the United Auto Workers?"

ONE of the most frequently raised questions during the campaign was, "If no union—then what?" Many people discussed and considered the possibility of a sounding board type of organization. The decertifiers asked the Engineers in-Industry Section of the Minnesota Society of Professional Engineers if a special meeting could be arranged on the subject of sounding boards. With the help of NSPE, such a meeting was held with Mr. D. F. Langenwalter of General Electric (past president of both the Schenectady General Electric Engineers Association and the coordinating council of General Electric Engineers' Associations) speaking and answering questions. This meeting gave the Honeywell engineers, as well as those from many other Twin City concerns, a good understanding of the General Electric sounding boards.

From the basis of the post card petitions, the decertifiers expected that the professionals would vote about sixty per cent "neither union" and the technicians about fifty per cent "neither union" with a possibility of a run-off election being held in the technical group if a clear majority did not result from the first ballot. Both these estimates were too pessimistic. The professionals voted sixty-four per cent "neither union," while the UAW received only twenty-two per cent and ESA only fourteen per cent. It is interesting to note from the UAW membership figures and the general election statistics, that over 300 of the UAW members voted against the UAW. The vote for UAW in the general election was even less than the number of FHE members favoring the UAW affiliation in February.

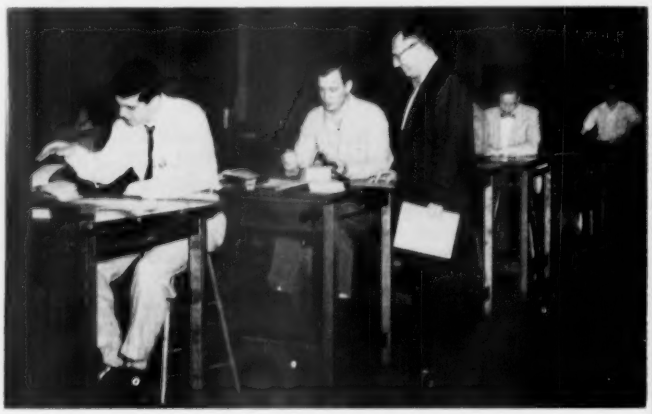
The real surprise was the strength with which the technicians rejected unionism—fifty-six per cent. ESA, not wanting the technicians in its units, got nine per cent of their vote while the remaining votes—only thirty-five per cent—went to UAW.

The vigor of the campaign was established by the fact that over ninety-five per cent of the eligible voters voted.

What do these results indicate? I believe they indicate the rejection of the union's traditional class warfare concept by the engineers and technicians, a readiness to experiment with new approaches to human relationships.

Much more than mere willingness to experiment is needed, however. The closing of the gulf between supervisor and non-supervisor will require the mutual effort of both. The essential thing in this experiment is whether voluntary communications can be made adequate to the job at hand. The class warfare concept says "no"—the only way to communicate from labor to management is with the force of a collective bargaining agent threatening strikes and other "economic sanctions." The engineers and technicians at Honeywell have rejected this theory and are going to give voluntary communications a try.

Perhaps the greatest effort will be that of the personnel



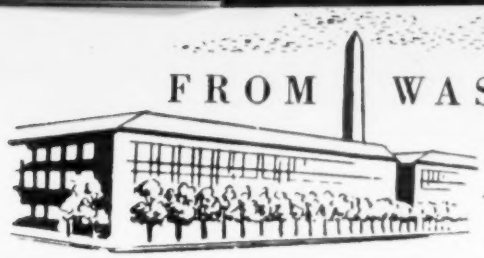
Professionalism begins early at the DuPont Company. Here Clarence Evans, chairman of the Delaware State Board of Registration, discusses engineer-in-training examinations with young DuPont engineers.

departments and of the supervisors—changing from a posture of opposing the union to a position of leadership. In this new position they will have the entire responsibility to make and execute personnel policy which is mutually advantageous to both the company and the employees. The background for all such policies is the information received, and here is where the employee's effort will be required. He will have to communicate directly with supervision matters which he formerly handled through the shop steward.

To further the various means of communications, the Honeywell Engineers' Club, which has not previously concerned itself with employment practices, has a committee studying sounding boards. The researches of this committee should be of real value to the engineering, scientific, and technical employees in deciding their future course in "labor-management" relations.

The engineers and scientists at Honeywell have taken a truly objective look at the situation. They have decided that perhaps the collective bargaining method is not the only way, and that application of the scientific method of experiment may produce a better way in labor relations as it has in technology.

This statement of the problem oversimplifies it greatly; years of the clenched fist approach to labor-management relations cannot be overturned in a day, a week, or a month. The open handshake approach may take some time, but it can be achieved, and I believe it will be found to be a much better method. The employees, the management, and the stockholders have a mutual interest in assuring that their company develop in an even more progressive and prosperous manner.—*End.*



FROM WASHINGTON

By
Milton F. Lunch,
N.S.P.E.'s Legislative Analyst

PROFESSIONAL STATUS UNDER TAFT-HARTLEY

ON June 23, the Taft-Hartley Act rounded out the first decade of its existence, and with it the engineering profession has had the benefit of ten years of experience in the determination of professional status for engineering employees. This, then, should be a propitious time to review the experience and to analyze what that experience indicates for possible future amendment of the law in terms of professional definition.

As shown by the complete definition of "professional employee" on this page, the National Labor Relations Board is guided by a rather specific and detailed congressional statement of the factors to be considered in arriving at a decision on professional status. But each element of the definition is necessarily general and subject to varying interpretations.

Based on past decisions of the National Labor Relations Board, some general principles can be enumerated, as follows:

1. Title is the least important factor. In one case a time-study employee was held to be within the professional definition; in another case an individual with the same title was held to be in the nonprofessional category.

2. Type of work performed by the individual or group is the major factor. This involves degree of independent judgement, discretion, supervision, intellectual, as opposed to standardized approach to the work.

3. Registration under a state law has been noted in support of professional status for engineers, nurses, doctors and lawyers. But professional status has not been denied if the other standards are met and registration has not been accomplished.

4. Standard requirements of the employer for the position. If the employer generally requires a college degree or other professional requirement for the work, the Board will often use that as a criterion.

5. Requirements of the position. Is it one which is usually filled by a professional person?

6. Educational background. College degrees appear to have the highest consideration, but equivalent experience is often substituted. If a majority of the group have college degrees it may often bring the remainder doing the same work into a professional status.

7. Distinction between technical and professional employees. This appears to be one of the most difficult lines to draw. Many professionals do technical work, but many employees doing somewhat similar technical work fall short of the general professional requirements.

8. Agreement of the parties. If the contesting parties agree that certain individuals or groups are professional, or are not professional, the Board will generally accept that agreement as sufficient indication and will not pass independent judgement. However, the Board may reject the agreement of the parties if it feels the definition has been stretched too far.

With this background some recent developments and Board decisions will shed further light on the problems encountered. Is the NLRB required to make individual determinations of professional status, regardless of the number of employees involved? The Board clearly says not, holding in one case: "We are not passing upon the individual qualifications of each engineer, but rather upon the character of the work required of them as a group." One of the larger engineering unions is now attempting to upset this Board doctrine, arguing that Section 2 (12)

(Please turn the page)

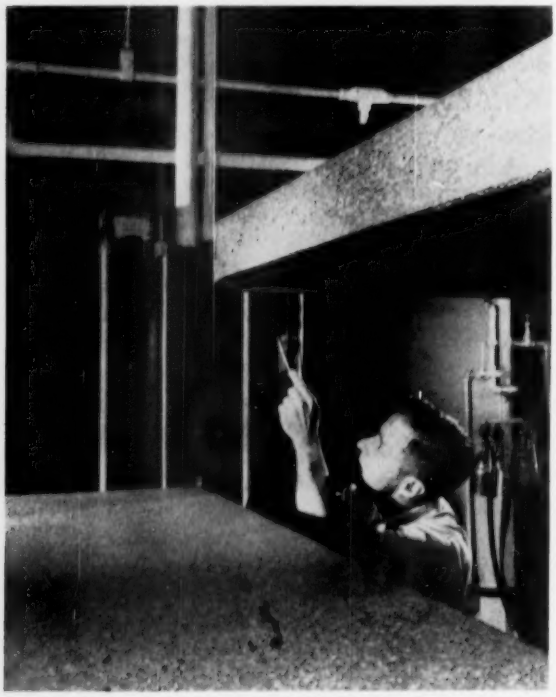
Section 2 (12)—Taft-Hartley Act

"The term 'professional employee' means—

"(a) any employee engaged in work (i) predominantly intellectual and varied in character as opposed to routine mental, manual, mechanical, or physical work; (ii) involving the consistent exercise of discretion and judgement in its performance; (iii) of such a character that the output produced or the result accomplished cannot be standardized in relation to a given period of time; (iv) requiring knowledge of an advanced type in a field of science or learning customarily acquired by a prolonged course of specialized intellectual instruction and study in an institution of higher learning or a hospital, as distinguished from a general academic education or from an apprenticeship or from training in the performance of routine mental, manual, or physical processes; or

"(b) any employee, who (i) has completed the courses of specialized intellectual instruction and study described in clause (iv) of paragraph (a), and (ii) is performing related work under the supervision of a professional person to qualify himself to become a professional employee as defined in paragraph (a)."

requires not only that the work be professional, but that each and every individual doing that work be individually professionally qualified. Under this concept two engineers doing identical work, and with identical classification, grade and title could be separated into a "professional" finding for one and a "nonprofessional" finding for the other, based on individual background and qualification. It is unlikely that the Board will ever accept this doctrine, largely because of the extremely difficult administrative problems in units where hundreds or thousands of employees are involved, and because of the disruptive labor relations results which would flow from internal divisions of homogeneous groups. Nonetheless, the fact remains that the present rule does allow substantial numbers of unqualified persons to ride into "professional" status on the coattails of an over-all group who are mostly professionally qualified.



The Taft-Hartly Act has resulted in many determinations of the professional status of engineering employees.

How important is an engineering degree for professional qualification under the definition? In a recent case the NLRB granted professional status to 132 tool designers and 133 design engineers even though engineering degrees were held by only twelve per cent in the first group and fifty per cent in the second group. The Board justification in both categories is that the work is primarily creative design, the employees had extensive practical knowledge and experience requiring the application of engineering principles generally acquired in institutions of higher learning, and most of the nongraduates had taken academic courses in mechanical engineering, mathematics and design, which are equivalent to engineering degrees. To further justify professional status for the tool designers, the Board said the low percentage of degrees is explained by "the relative infancy of this special field which became widespread only with the advent of industrial automation. . . . Very few universities have yet inaugurated such courses. Those institutions of higher learning which have included tool designer degrees carry a curriculum identical to that for mechanical engineering degrees with the substitution of a few specialized subjects. However, an applicant with an engineering degree will not qualify for either tool design or design engineering work with the employer but will be placed in the classification and perform the work of detailers until, through working with tool designers or design engineers, they attain sufficient knowledge and experience and have proven their aptitude for creative designing."

Another interesting aspect of this case is that both categories are paid on an hourly basis, which ordinarily indicates nonprofessional status in the Board's eyes. But here the Board did not allow a non-salary status to forbid professional status because the employer's contracts are estimated, and audited by the customer on an hourly-rate basis.

In another recent decision the Board denied professional status to several categories of employees because the employer required only high school training, plus some technical experience, or, at most two years of college plus experience. Some of the affected employees had technical degrees, but they were swept into nonprofessional status as part of the over-all group. Here again the Board referred to the type of work involved as not being within the professional definition.

A further pertinent decision holds several employees with professional engineering degrees, performing duties as a surveyor and senior load dispatchers in an electric utility company, to be outside of the professional definition. The Board's rationale is the type of duties which do not meet the "intellectual . . . varied . . . discretion . . . judgement . . ." test. In the case of the load dispatchers, the Board added that the employer did not require a professional degree and other dispatchers of comparable grade did not possess the same educational qualifications.

It would seem clear that the first and essential test is the professional nature of the work performed. But over and above this remains the question of professional qualification. Prior to the enactment of Taft-Hartley there was some consideration of an engineering registration requirement as an individual qualification. In addition to the obvious problem of dividing employees with the same duties and titles there are other obstacles. Foremost among these is the fact that the professional definition applies to more than engineers. Others, such as chemists, physicists, mathematicians, etc., do not have a state registration system. An alternative solution could be a state registration requirement, if it is available, or, a degree from an accredited institution if registration is not available. Those who cherish the tradition of the "school of hard knocks" (including many in Congress) would have to be convinced that the tightening of professional standards in an age of growing technological complexity justifies the abandonment of the Horatio Alger concept which has been held to be at the root of America's growth and progress.

Three New Societies Join . . .

New PECBI Report Released at Dallas; DuPont's Read Honored

A REPORT on "Career Satisfactions of Professional Engineers in Industry," presentation of the 1957 NSPE Award to Granville M. Read, and the affiliation of three more state societies highlighted the National Society's annual meeting in Dallas, Texas, June 5-8.

Based on personal interviews with 265 professional engineers employed in industry throughout the country, the report revealed:

- Engineers must change their attitudes if they are to become good managers.
- Opportunity for advancement and the chance to do creative work are rated as the most important job factors.
- Three fourths of the engineers feel their education was deficient in certain areas.

The detailed "depth" interviews were designed to bring out the non-salary career satisfactions of engineers at three stages of professional experience—3 to 6 years, 10 to 15 years, and 20 to 25 years.

The survey is the latest in a series of executive research reports made under the sponsorship of the Professional Engineers Conference Board for Industry, in cooperation with NSPE. Noah Hull, chairman of the PECBI, reported on Conference Board activities. He told Society members of the success of the four previously published surveys and some of the background behind the new report.

Chairman Hull introduced Joseph Goeke, representing the Opinion Research Corporation, Princeton, N. J., conductors of the survey, who presented the report. The results of the survey will be published in booklet form and soon made available.

At the final banquet session, Mr. Read, chief engineer for E. I. du Pont de Nemours & Company was presented with the 1957 Award for outstanding service to the engineering profession.

Mr. Read told his audience that engineering as a profession "is confronted with an economic challenge which may also be its brightest opportunity. . . In recent years productivity has failed to keep pace with rising labor costs. The consequence has been a gradual but persistent rise in prices. Similarly, the return on capital investment has declined substantially since 1948. It would seem more important than ever," he said, "for management to turn to engineering talent and skills, not only for those services being rendered, but for new ways in which the engineer can be of help."

Other features of the Saturday night banquet were a talk by Ben C. Bellamy, of Lamont, Wyoming, to commemorate the fiftieth anniversary of engineering registration, and installation of the new NSPE members. Mr. Bellamy was among the first engineers registered under the initial state registration law established in Wyoming in 1907.

The Wyoming Society of Professional Engineers presented their petition of affiliation to NSPE along with the South Dakota Society of Professional Engineers, and the Canal Zone Society of Professional Engineers. All three petitions were accepted by the Board, bringing the number of state societies to forty-five.

In another important development, the Board approved a recommendation of the Functional Section for Engineers in Private Practice to appropriate $1,500 of NSPE funds to the Section to meet an urgent need for immediate financial support of the American Thrift Assembly and other supporting action by NSPE to promote the Jenkins-Keogh Bill.

In a talk on "Tomorrow's Professional Engineer," outgoing President Robert J. Rhinehart spoke on various Society activities and told members that "the aims and objectives of NSPE established by our founding fathers

Granville M. Read, P. E., chief engineer of the DuPont Company, left, receives the 1957 NSPE Award for outstanding service to the engineering profession from retiring Society President Robert J. Rhinehart.

The head table scene at the annual banquet which closed festivities at Dallas.

twenty-three years ago are just as good today as they were in 1934."

A one-day series of conferences on the professional development of young engineers in industry, private practice, government, and education were well attended on June 7. The conferences featured panel discussions and question and answer sessions led by leading engineers in each field. The papers presented at these conferences will be carried in forthcoming issues of the AMERICAN ENGINEER.

In addition to the professional meetings, regional luncheons, conferences, and social activities, the members and their guests viewed exhibits of approximately thirty-five industrial firms and organizations.

The Committee Reports follow:

CHAPTER ACTIVITIES

As a culmination of three years effort, the Chapter Activities Committee has substantially completed a program of Organization for Effective Action which outlines methods for productive committee work at national, state, and local levels, and which provides the tools for systematically indoctrinating and stimulating state and chapter officers and committees. The Committee has prepared a series of monographs outlining in concise terms, suggested committee activities and programs, duties of and opportunities for officers, suggestions for improving meetings, publications, and programs which can be produced and distributed at low cost to the Society. Because of the low cost of the monographs, it was planned that the monographs could be mass distributed and revised yearly, or as often as necessary, to reflect the Society's changing program of action. The completed monographs are:

1. Organization for Effective Action
2. Indoctrination Conference for Chapter Officers and Committees.
3. Meeting Programs, Attendance and Fellowship
4. The Importance of Chapter Publications
5. Helping the Young Engineer
6. Promote Ethical Practice
7. NSPE Ladies' Auxiliaries
8. Functional Group Activities
9. Education—Key to the Future
10. Public Relations
11. Chapter Evaluation and Scoring System

It became evident during the preparation of the monographs that an effective means must be provided to communicate to and indoctrinate chapter officers and committees; hence, the preparation of the monographs on Organization for Effective Action and Indoctrination Conference for Chapter Officers and Committees.

As the committee program developed, it was obvious that providing the tools and stimuli was not enough, but that a "challenge" and a "conscience" must be provided for maximum effectiveness. The monograph on Chapter Evaluation and Scoring System fills this need. It is suggested that in time the state societies grade their chapters by means of this monograph.

Supplementing the monographs, the Committee has prepared a booklet which is issued to new incoming chapter presidents entitled, "Welcome, Mr. President," which is designed to be an inspirational introduction to the myriad duties and responsibilities that a chapter president faces.

This Committee was given by President Rhinehart the task of reviewing the Chapter Handbook and a questionnaire was sent to all chapter secretaries and presidents. The questionnaire positively indicated the widespread use and value of the handbook and the need for its revision and modernization. As an outgrowth of the handbook study, the need became apparent of an indoctrination kit for newly elected chapter presidents, containing the summary of available NSPE literature and a selected number of the more pertinent publications. This kit is now ready and will henceforth be sent to newly-elected chapter presidents as they take office.

The Committee recommends the continued spotlighting to the chapters of effective and unusual tools developed by the various chapters, such as outstanding year books, bulletins and chapter officers' conferences. Several additional monographs can be written and the present monographs should be reviewed for improvement and modernization.

The following is a simple summary of the functions of national, state and chapter, with reference to chapter activities:

1. Function of NSPE. Develop programs from grass root

Above is shown the first registration card ever issued in the United States. It belonged to Charles Bellamy, P. E., and was issued on August 8, 1907, in Laramie, Wyoming. The numeral "1" can barely be seen in the lower left-hand corner. Mr. Bellamy's son, also an engineer, spoke at the meeting.

idea: exchange and provide tools for stimulating state and chapter activities.

2. State Society—Stimulate chapter activity and co-ordinate chapter programs.

3. Chapter—Carry out suggested committee activity; reap increased individual member interest; increased membership; better public relations and increasing professional stature.

Board Action: Report Received

CONSTITUTION AND BYLAWS

We propose amendments to the Constitution intended to constitutionally recognize "Functional Sections." While it may be argued that this is not necessary in view of the fact that the Board of Directors has already adopted Bylaws to effectuate the creation of "Functional Sections," this Committee considers these amendments advisable.

We are not entirely certain that the approval of these proposed constitutional amendments should not have preceded the adoption of the Bylaws when a new policy as important as this is involved. It is our opinion that, when incorporated in the Constitution, "Functional Sections" will indeed become an integral part of the Society by virtue of membership endorsement.

We propose an amendment to the Bylaws which would move Montana from the North Central to the Western Administrative Area. This seemed to us to be the more realistic, geographically, and is believed to be favored by our most recent member State Society, Montana, probably because of closer common interests.

We offer, also, Bylaw amendments relating to "Quorums" at annual meetings and Board of Directors' meetings. We believe these suggested amendments merit the consideration of this Board of Directors.

RECOMMENDATIONS:

This Committee recommends that the Board of Directors of NSPE approve the following proposed amendments to the Constitution, and authorize their submission to the membership of the Society for adoption or rejection by mail ballot.

ARTICLE XI

Section 1—To further the objectives of the Society, establishment of Functional Sections is authorized.

Section 2—The Board of Directors may sanction the creation of, or order the dissolution of, Functional Sections according to provisions therefore defined in the Bylaws.

Change the numbers of Articles XI and XII to Articles XII and XIII respectively.

This Committee presents the following proposed amendment to the Bylaws and recommends its adoption.

BYLAW 31—Administrative Areas

Change the State of Montana from the North Central Area to the Western Area.

Finally your Committee presents the following suggested amendments relating to "Quorums" for the consideration of the Board of Directors. In the absence of a mandate from a source within the Society, and in view of the fact that the members of the Committee have not indicated any urgent need for the adoption of these changes, we suggest that the Board of Directors discuss the proposals. You may then approve, reject, or refer back to the Committee for further study or you may instruct the Committee as to definite disposition. These proposed amendments are offered without specific recommendation.

BYLAW 2—Meetings

Delete Paragraph e., and substitute therefore the following: For the purpose of transacting business at the annual meeting of the National Society a quorum shall consist of delegates who are officially qualified to vote, and who, collectively, are entitled to cast a majority of the total number of authorized votes and who represent a majority of the member state societies.

Delete Paragraph f., and substitute therefore the following: For the purpose of transacting business at meetings of the Board of Directors a quorum shall consist of Board members qualified to cast a majority of the total votes of the Board who also represent a majority of the member state societies.

Board Action: Recommendations Approved

(Continued on page 37)

Here are the firms and organizations displaying exhibits at NSPE's 23rd annual meeting in Dallas, Texas.

Allis-Chalmers Manufacturing Co.
Jack Ammann Photogrammetric Engineers, Inc.
Anchor Metals, Inc.
Burgess-Manning Co.
Ceramic Cooling Tower Co.
Chance Vought Aircraft, Inc.
Convair
Douglas Aircraft Co., Inc.
Electrical Service Company
Encyclopedia Britannica, Inc.
General Electric Co.
General Filter Co.
Horn Blue Print Co.
International Aerial Mapping Co.
International Business Machines Corp.
Jay Company, Div. of J. Loukart Machine Co., Inc.
Layne Texas Co.
LEAP Concrete, Inc.
Mason-Johnston & Associates
Minneapolis-Honeywell Regulator Co.
Plan Hold Corp.
Raymond Concrete Pile Co.
L. L. Ridgway Company, Inc.
Southern Methodist University
Southwestern Bell Telephone Co.
Southwestern Laboratories
Texas A & M College
Texas Society of Professional Engineers
Texas Vitrified Pipe Co.
L. R. Ward Steel Products Co.
Westinghouse Electric Corp.

Top photo: **Archie Friel, president of the Michigan SPE, proudly displays a plaque won by his Society this year in a membership contest with the Wisconsin SPE. Others in the photo are, l. to r.: Harold Trester, Wisconsin national director; Fred Cheek, Michigan national director, and W. S. Cottingham, Wisconsin national director.** ***Lower photo:*** **Group winners in the NSPE Membership Contest were presented with plaques at the annual meeting. Shown, l. to r., are: John B. Miller, Florida Engineering Society president, winner in Group II; H. M. Estergreen, Indiana national director, Group IV winner; Harold Mosher, NSPE Membership Committee chairman; A. L. Bayone, North Dakota national director, Group I winner; P. W. Genovese, Connecticut national director, Group III winner, and Gibbs A. Dyer, president of the Texas SPE, Group V winner.**

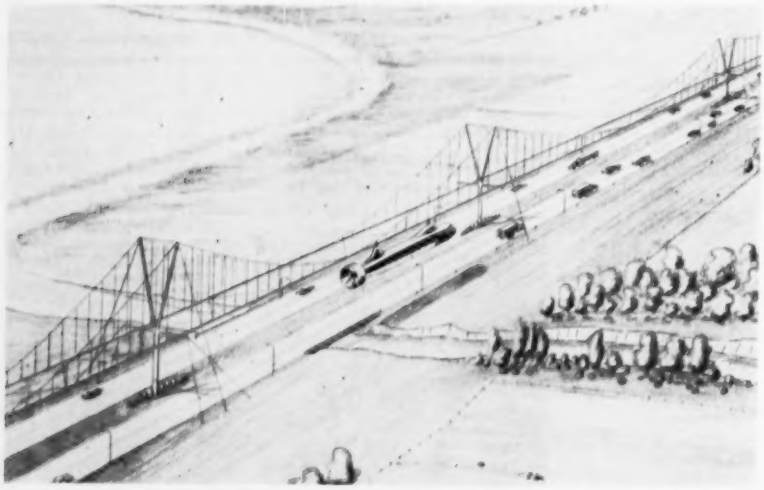
NEW Processes . . .

Piasecki Aircraft Corporation Plans New Economical "Airail Car" System

Plans to provide a safe, fast, economical "airail car" system, superior to existing monorail systems to help solve baffling mass surface-passenger transit problems have been announced by Piasecki Aircraft Corporation.

Unique features of the Piasecki-design airail car combine aeronautical principles that make the car capable of reaching aircraft speeds while still being connected to a safety rail. The new design is completely safe, capable of attaining aircraft speeds and economical to produce and erect."

"Mass transportation problems facing authorities are rapidly reaching surface capacity saturation points. New transportation systems must be used to get people off the ground and into the air in metropolitan and inter-urban, short and long-haul transit. In many high density traffic areas, airail can provide the quickest and lowest-cost method of solution," Mr. Piasecki said.



Using aircraft design principles, Piasecki Aircraft Corp., proposes a unique, fast, safe, economical "airail car" to help solve the intolerable surface traffic jams in metropolitan and inter-urban transit. The Piasecki-design "airail car" would be capable of searching aircraft speeds.

cars can be operated singly or in multiples.

Among the airail system's distinct advantages over conventional monorail systems are: design for minimum capital expenditure and minimum installation outlay; minimum interference with the surface area beneath the rail; capability to cross over and/or use railroad, turnpike or other rights of way.

Frank N. Piasecki, president of the Company, said: "Using the unique design and services of associated aeronautical and mechanical engineers, in addition to transit experts, we propose manufacturing airail cars and systems that will combine aeronautical principles heretofore not used in conventional monorail-type systems.

Piasecki Aircraft is considering possibilities of combining its planning with structural steel erecting groups to provide an integrated, complete service to transportation companies. Under this working arrangement, Piasecki would build only the airail cars.

Mr. Piasecki pointed out Sao Paulo, Brazil, is about to start construction of a monorail system that will also go underground.

New York, Detroit, Chicago, Milwaukee, San Francisco, and Los Angeles are evaluating monorail systems.

Glatfelter Machine Increases Production

The P. H. Glatfelter Paper Company has added a new machine that will increase its high quality bleached paper production from 240 tons to approximately 425 tons per day. The unit incorporates the very latest in engineering design and equipment.

Glatfelter generates most of its own electricity. Four 3 conductor leads of 2400 volts each in armored cable provides the main power supply. From the single distribution center the power is carried to 2400 volt motor controls by armored cable on ladders. From the same center armored cable on ladders carry the power to four unit substations and from these at 440 volts to the drive motors. Multiple conductor cables with 2 to 9 conductors per cable are used. These armored cables are supported by a ladder type system that provides flexibility and offers great savings during installation.

The motor and motor control circuits are neoprene jacketed cables up to 500,000 MCM. These cables are supported throughout the mill in Cope Cable Trough. Ladder was not used for the neoprene jacketed cables because these cables require continuous support. If ladder had been used instead of cable trough catenaries would have formed between the rungs and the cable insulation would creep where the cables cross the rungs. Eventually a failure would result.

Cope Cable Trough is a system of expanded steel mesh with $1\frac{3}{4}$" diamonds. It is available in various widths from 6" to 24" and with 3 sides. A "J" type binder strip is welded along the top of the sides and the entire system is galvanized. When supported at intervals of six or eight feet it provides a continuous support and protection to the cables.

Cable Trough provides a very satisfactory system to support flexible cables and is much less costly to install than conventional conduit. The big saving is in installation time.

A further advantage is that additional cables can readily be laid in the existing trough as power demand increases. And since air can circulate freely around cables the heat that is generated by the flow of current is quickly dissipated.

N.S.P.E. Believes

NEED FOR PROFESSIONAL CONCEPTS

BY PAUL H. ROBBINS, P.E.

Executive Director

N.S.P.E.

WHETHER it is a sign of age, or whether it is merely a pressing problem in the profession, but a frequent point of discussion among the more senior engineers poses the question, "How can we instill professional concepts in the young engineers of today?" This is not a new query, for engineers for many years have been decrying the fact that the modern generation does not have a sufficiently sound grounding in professionalism, and will be unable to carry the torch toward the status of engineering to which all aspire.

Is the problem, then, any more serious today than it has been over the years? If we feel that the intense activity of professional societies is the criteria of the degree to which professional concepts have been instilled in engineers, then a recent study by the Professional Engineers Conference Board for Industry in cooperation with the National Society of Professional Engineers, and summarized at the Dallas meeting, presents some sobering statistics.

In this study, the engineers of less than fifteen years' experience indicated that only one of two belonged to a professional society, and of those who belonged, less than ten per cent were active. This same study shows that while engineers aspire to professional status they are doing little about it. The report has this to say: "From their comments it is questionable whether many engineers are convinced that they are professionals. Often their comments reflect the belief that they are just employees, and as such to aspire to professionalism is unrealistic. The engineers confess that their own group lacks professional spirit and lacks emphasis on professionalism."

While the profession has noted with gratification the recent election at the Minneapolis-Honeywell Plant in Minneapolis in which professionals turned down union representation, the fact still remains that one out of three of those professional employees voting felt that a labor union was the type of organization in which they wished to place the future of their careers. These are sobering studies, indeed, and give substance to the wisdom of encouraging professional concepts in the engineers of tomorrow.

NSPE believes there are three general areas of attitude on which more emphasis needs to be given in our collegiate training of engineers. First, the professional engineer needs to be continuously aware that he is entering a profession of which he can well be proud; that before him have gone many with high ideals, each of whom has raised the profession to a slightly higher plane than when he entered it. Secondly, he needs to be instilled with the idea that this is not something for someone else to do; that each engineer as he enters the profession has an obligation to leave the profession a little better than he found it; that this involves not only performing at his highest technical competency, but to so conduct himself in his relationships with his employer, in his relationships with his community, in his relationships with organizations with which he may be associated, that all who come in contact with him appreciate that he is a professional man. Further, it obviously involves that he should be encouraged to become active in professional societies, in civic affairs, in service organizations, and in all elements which make for a better community and a better country. As a professional person, it is not sufficient to merely put in the required hours of work and forget all other responsibilities. And lastly and perhaps most important of all, he should approach his life's career with a firm recognition that the profession owes him not one thing; that it is an honor to be accepted into the profession and that he is duty bound to earn that honor.

NSPE believes, as indicated by recent action of the Society, that the teaching of such concepts is not only the responsibility of individuals but of the professional society and the profession as a whole. To be of assistance, NSPE is now printing a brochure on ethics for wide use among students and others, which should be available before fall. It has also recommended that greater emphasis be placed on this subject in our collegiate training of engineers, and has suggested not only a course toward this end but an awareness of the problem by each engineering educator. ***End.***

A New Approach to Professional Unity

By

Morris D. Hooven, P.E.

Chairman, NSPE Inter-Society Relations Committee

All Engineers Should Take a Good, Hard Look At This Timely Proposal.

At the annual meeting in Dallas last month, President Rhinehart reported a proposal from the Board of Directors of AIEE, which first had been laid before a conference of presidents of the Founder Societies, NSPE, ECPD, and EJC and later published in a letter from the president to the membership of AIEE. President Coover's letter is reproduced on the opposite page. The proposal it contains has been referred to a committee of past presidents of NSPE for study. It is worthy of the careful consideration of all members of NSPE and engineers everywhere.

The hope for "unification of the profession" to which Dr. Coover refers has been, as he says, with us for many years. There can be no doubt of its universal appeal. Efforts at its achievement have usually taken the form of plans and organization charts for a super-federation or a single large organization in which all those holding a valid claim to the title "engineer" would join. So far it has not got "off the drawing board." Meanwhile we have gone about the business of doing some of the things that needed most to be done as best we could with the organizational instruments at hand or improvised for the purpose.

These organizational instruments, cumbersome though they are, are now functioning. We already have a great deal of working unity. Perhaps the profession, in developing as it has, unconsciously devised organizational tools which may be modified so that, when coordinated, they will form a device that will approach the ultimate integration so ardently desired. AIEE is proposing that existing organizations be slightly modified so that NSPE handles all professional problems, ECPD all educational ones, and EJC all intersociety technical ones. Working in these defined areas should make for coordination and ultimate integration.

PRESIDENT Rhinehart told the annual meeting in Dallas that the eight presidents of the major engineering societies who discussed the AIEE proposal in New York last March had given it careful and serious consideration. Your annual meeting in Dallas did too. The committee of NSPE past presidents to which it was assigned for study will also. Every member of NSPE should do likewise.

NSPE has some serious questions to consider here. Does this proposal open the door to a tremendous increase in NSPE rate of growth? What would happen to the requirement of registration? All engineering societies highly recommend registration; however, from a purely realistic approach it must be realized that there are segments of the profession in which an engineer may well serve his community without being registered. It is proposed that NSPE recognize engineers of this sort (all of who perform services of the highest technical quality) in some way so that NSPE can speak with the authority of the *entire profession* behind it. When a challenge like this is presented, membership requirements should be examined calmly and deliberately and wisely.

The same sort of examination faces the membership and the responsible leadership of the Founder Societies and their federations. Sincere, devoted men have invested years of service to the profession through one organization or another. They will want to be sure that any change of scope and purpose and function represents real gain toward valid objectives, and not mere organizational tinkering that will leave more confusion and less accomplishment in its wake than we had before. It is therefore to be hoped that all concerned will take a good, hard, critical look at the AIEE proposal; but at the same time, this look should be an objective and sincere one in justice to its high purpose and the plan it maps out for achievement of our common objective.

(Editor's Note: The proposal by Dr. Coover is contained on the following page.)

About the Author . . .

Mr. Hooven

Morris D. Hooven, chief electrical engineer of the Public Service Electric & Gas Company, of Newark, N. J., was born in Weatherly, Pa., May 30, 1897. Mr. Hooven began his engineering education at Carnegie Institute of Technology, but left during World War I to serve in the U. S. Army Signal Corps. Following the war, he resumed his education at Bucknell University and graduated in 1920. After serving as an engineer with the Westinghouse Electric & Manufacturing Company, he joined Public Service in 1922. Mr. Hooven is past president of the Montclair Society of Engineers, member of Eta Kappa Nu; senior member of the Institute of Radio Engineers; Fellow of the American Institute of Electrical Engineers, having served as past director, vice president and past president. He is also a member of ASME, ASEE, and the NSPE and serves as chairman of the Liaison Committee between NSPE and the EJC, on which he also serves. Just recently at the 41st commencement exercises at the Newark College of Engineering, Mr. Hooven received the honorary degree of Doctor of Science, the seventh person to be granted this honorary doctorate since 1919. He is also currently chairman of the Engineers' Council for Professional Development.

To All Members of the Institute:

Based on a survey of membership in 1947, our Board of Directors has followed an "Institute Policy" expressed in the following "Statement" adopted on June 15, 1950 (*Year Book*, 1954, Resolutions, p. 609):

1. To work continually for the unification of the profession.

2. To recognize the fact that the Institute finds its chief reason for existence in the technical field.

3. To handle questions on nontechnical affairs as necessary and as they arise, on an emergency basis until through unification they can be handled on a general professional basis.

In 1941, AIEE and the other Founder Societies, joined in 1942 by the American Institute of Chemical Engineers (AIChE), formed the Engineers' Joint Conference, which in 1945 became the Engineers' Joint Council (EJC). Although recognized initially as a Federation of Societies, it was hoped that EJC eventually would develop into a "Unity" organization of the type for which our membership had expressed a preference; namely, a society based on individual membership, with power to act and with adequate finances.

In reappraising this situation, the AIEE Board has reached the conclusion that there is little likelihood in the immediate future of welding the activities of the various technical and professional societies into one "American Engineering Association" to parallel the American Medical Association (AMA) and American Bar Association (ABA). Accordingly, for the present, the AIEE believes that the several established organizations should operate in accordance with the division of activities outlined below, and proposes to furnish moral and financial support on this basis.

1. *Electrical Engineering.* AIEE to provide the medium for advancement in technology in all branches of electrical engineering and to devote its efforts to this end. It is recognized that excellent services are being rendered in specialized areas of electrical technology by other societies. AIEE will co-operate with these societies. If mutually satisfactory arrangements can be effected, AIEE is agreeable to a merger into one organization for economy of operation and co-ordination of activities.

2. *Engineering other than Electrical.* EJC to provide the medium for co-ordination and co-operation on technological matters transcending the electrical field, and to present to the public the position of the engineering profession on technological matters.

For these purposes, a Federation of Societies is adequate. Accordingly, the AIEE Board proposes that, in the future, it will support and participate only in the technical activities of EJC.

3. *Engineering Education.* Engineers' Council for Professional Development (ECPD) provides the medium for guidance in engineering education (a) during high school preparation, (b) during the undergraduate and postgraduate collegiate periods, and (c) during the "engineer-in-training" period for a professional career. It could be delegated to represent the engineering profession in all educational matters.

4. *Professional Development and Economic Status.* National Society of Professional Engineers (NSPE) to provide the medium for the general promotion of the professional aspects of engineering in the eyes of the public, and be instrumental in the consequent enhancement of the economic status of engineers. The term "professional," as differentiated from technical and educational, is construed to include such activities as registration, employment practices, salaries and fees, legislation, and ethics.

5. *Co-ordination of Activities.* To implement this policy, the AIEE Board proposes that the several activities presently individually sponsored by these organizations be assigned according to the aforementioned delineation of scopes; namely, technological (EJC), educational (ECPD), and professional (NSPE). Separation and realignment of activities into these three categories could eliminate present confusion and wasteful duplication of effort.

If each of the organizations establishes itself in the fields indicated, it is believed that many of the advantages desired of a "Unity" organization may be realized. Eventually, it may be possible to incorporate them into one over-all engineering association.

6. *Expansion of NSPE.* AIEE has for many years recommended to its members that they should take steps to register as professional engineers. NSPE should put itself in a position to represent the profession more completely by expanding its individual membership organization to include those qualified members of the profession whose work does not by law require registration as well as registered engineers. Under such conditions, the AIEE Board proposes to recommend that all its members affiliate with NSPE.

In response to action by the AIEE Board of Directors on October 5, 1956, your President has discussed informally, personally, and/or in writing, the foregoing with the incumbent and incoming Presidents of many of the national engineering societies. They were requested to indicate, from a purely personal viewpoint only, whether they believed there is merit in further explorations. Their response has been encouraging.

On reporting this to the Board of Directors at its January 25, 1957, meeting, your President was instructed to proceed with the project. This letter is intended to be in the nature of a progress report to you.

I have yet to hear any engineer regardless of his society affiliation express opposition to unification of the engineering profession. The usual comment is, "the sooner the better," or "why doesn't someone do something about it?" If unification is ever to be accomplished, we must keep working at it continually. If you really believe in the project, as you have indicated through the survey of our membership, then I invite every contribution that you are able to make.

Sincerely yours,
M. S. COOVER,
President, AIEE

About Dr. Coover . . .

Dr. Coover

M. S. Coover is administrative assistant, division of engineering, Iowa State College, Ames, Ia., and has had a long career in engineering education and as an engineering consultant. He is widely known in those circles. He also has been active in the American Institute of Electrical Engineers for many years, currently serving as president. He has also been a director, a vice president and a member and chairman of committees, both on the Institute and the Section and District levels.

A native of Shippensburg, Pa., and a graduate of Rensselaer Polytechnic Institute, he has been in education since 1919 when he became associated with the University of Colorado. In 1939 he joined the staff of Iowa State College and was professor and head of the electrical engineering department until taking his present post as administrative assistant. Mr. Coover is the author of many technical articles and articles in university publications.

With Our Members . . .

At Annual Meeting

Rhinehart Proposes Return of 'Three R's' in Education to Massachusetts SPE

At the annual meeting of the Massachusetts SPE, "A Return to the 'Three R's' in Education" was proposed by Robert J. Rhinehart, outgoing president of NSPE.

Progressive education has had an appalling effect on the scholastic standings of the present day high school graduate, he said. So much so that "seventy per cent of enrollees in engineering schools must brush up on high school subjects before they can go on to regular studies."

Mr. Rhinehart went on to cite the need for more and better science teachers with suitable pay scales to keep them in the teaching profession. He also pointed out that the public must be informed of the dangers to national defense and technical progress that our present educational policies represent.

Dr. Paul Miller of Miller Associates in Boston then emphasized the importance of background influences in determining the effectiveness of individuals in technical work.

Dr. Miller pointed out that "every one has a certain degree of natural ability, but the extent to which he uses it depends very largely on motivations." He cited the need for determining the proper assignment to obtain the most effective contribution by the individual.

At the business meeting, John P. Manning was elected president to succeed Crawford Adams. Also elected were Raymond L. Doyle, vice president; Harold R. Feldman, secretary; Paul F. Gorman, treasurer; Walter J. Kreske and Joseph H. DeFoe, national directors, and Russell F. Hughes, state director-at-large.

W. L. Donovan Heads Pittsburgh Chapter

The Pittsburgh Chapter of the Pennsylvania State Society installed the following newly elected officers at their June installation meeting:

William L. Donovan, president; Donald M. McNeil, executive vice president; Russell M. Jenkins, vice president; William H. Wachter, vice president; John N. Berger, director; Charles K. Hertrick, director; Lawrence W. Hornfeck, director; Emerson Venable, director; Glen M. Comstock, state director, and Leland W. Cook, alternate state director.

Walter Biddle Elected Arizona SPE President

New state officers installed at the recent annual meeting of the Arizona SPE were Walter Biddle, president; Edwin P. Boothroyd, first vice president; A. H. Neal, second vice president; William A. Johnson, secretary-treasurer, and James O. Martin, Sr., national director.

G. W. McCullough, NSPE national director from Oklahoma and vice president of Phillips Petroleum Corp., was the featured dinner speaker.

Massachusetts Meeting

Top photo, **l. to r.: H. E. Crabtree, left, president of the North Shore Chapter, MSPE presents gifts to Robert J. Rhinehart, outgoing NSPE president and Dr. Paul Miller, principal speakers at the annual meeting.** ***Lower photo,*** **l. to r. new state officers—Russell F. Hughes, state director-at-large; Walter J. Kreske and Joseph H. DeFoe, national directors; John P. Manning, president and Raymond L. Doyle, vice president.**

Chapter Gives Award To Pittsburgh Teacher

An elementary school teacher, whose lessons in fifth grade arithmetic have "stimulated an enthusiasm among young people in the fields of mathematics and the sciences" became the recipient of an award from the Pittsburgh Chapter of the Pennsylvania SPE recently.

Alvin J. Stuart, an instructor of the WQED Television Teaching Demonstration's course in arithmetic since May 14, 1956, was presented a "Citation of Merit" from the Pittsburgh Chapter during the "Key to the City" program on Channel 13.

Making the presentation of the award to Stuart was Thomas Landau, president of the Pittsburgh Chapter.

The award reads as follows:

"In recognition of his skillful and inspirational ability as demonstarted while teaching mathematics over WQED, Pittsburgh's educational TV station.

"He has done much to stimulate the young people's enthusiasm in those subjects which will prepare them for careers in engineering and science, thus helping to alleviate the shortage in these fields.

"This citation is presented in acknowledgement and appreciation. May 16, 1957."

The award was signed by Landau, and by Edward L. Scanlon, secretary of the Chapter.

During the telecast, Stuart remarked: "My purpose in teaching arithmetic has always been to show the youngsters that it is a useful subject and not necessarily difficult to learn. Television, as a medium for teaching, offers opportunities for making arithmetic more meaningful by added visualization. I am very pleased that the Pittsburgh Chapter of the Pennsylvania Society of Professional Engineers feels that these lessons have sparked an interest in the study of mathematics and the related fields."

Stuart, who holds a B.S. Degree in Elementary Education from the University of Pittsburgh, is married and is the father of three children. He formerly taught at the Morse School in South Side, at Crescent School, and at the Morningside School.

News Gets Stale
Stale News Isn't Printed . . .

SO—Stories and photos for the *American Engineer* about outstanding chapter or state society events should be submitted *immediately after the events take place.*

Even better — *advance stories* whenever possible.

Citation of Merit

Alvin J. Stuart, left, is shown receiving an award from Thomas Landau, president of the Pittsburgh Chapter. (See story at left.)

Life Membership Awards

Shown making presentations of life memberships to the Nassau County Chapter of the New York State Society are, l. to r.: Sol Uman, chapter president; Frederick W. Malkmus, past president; James M. Welsch, life member, Henry Waldinger, life member, and George H. Magee, life member.

Extends Congratulations

Robert J. Rhinehart, outgoing president of NSPE, congratulates Charles Curran, newly-elected president of the District of Columbia Society. Oscar Beasley, retiring president of the D. C. SPE, is in the center. Mr. Rhinehart was the main speaker at the Society's recent annual meeting.

Alphabetized by States . . .
Alabama-Missouri

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Gov. Handley Addresses Indiana Annual Meeting

"I have always been interested in the emphasis on the individual in the set up of the National Society of Professional Engineers," claimed Governor Harold W. Handley in an address at the recent annual meeting of the Indiana SPE.

"In a world where collectivism, the domination of super-government, and the persistent strangulation of liberty has become more than a trend, it is essential that we free Americans—if we are to remain free—shall continue to place our confidence in the sanctity of the individual," Gov. Handley said.

"The upgrading of your membership requirements has benefited not only your profession but also the business level of the nation," he continued. "When an organization increases its membership by one-third in two years as yours has done, yet does not lower its admission standards, then, indeed, it has become the norm of the profession. Then, indeed, has it justified the considerable expenditures which are being made by the public and by private philanthropy to give America the best possible engineering schools.

"And with our country challenged on every front around the globe, it is not too soon to have set our professional goals at the highest level. Nothing less than the best can enable us to meet the military, economic, and cultural needs of our people."

Connecticut Officers

At the annual meeting of the Connecticut Society held in New Haven on May 25, the above officers were elected to posts in the organization. From left to right, Ernest D. Mortenson, Stratford, first vice president; Philip W. Genovese, New Haven, national director; Louis A. Warner, Cheshire, president; Edwin S. Osteyee, Stratford, treasurer; Richard J. Shadford, West Hartford, second vice president; and Theodore Braaten, Norwich, past president. Stefan L. Grapmel, Norwich, third vice president and George Gray, North Haven, secretary are not shown in this picture.

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Engineering Seminar Sponsored By Chapter

The Chester County Chapter of the Pennsylvania SPE along with high school guidance counselors throughout Chester County recently organized and sponsored an engineering seminar to encourage high school students to prepare for college enrollment in the field of engineering.

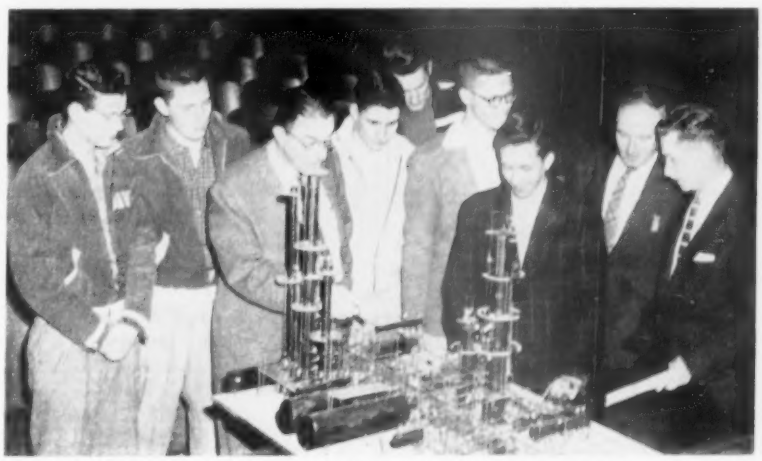
Approximately 100 students and parents attended the seminar. Members of the Chapter contacted school principals in their respective areas to extend invitations to all pupils who were the least bit interested in one of the phases of engineering. Further contacts were made by Thomas Stoner, guidance counselor at Downingtown High, through guidance counselors at the county high schools.

Some girls as well as many boys attended the seminar. One of the most encouraging aspects of the seminar was the number of underclassmen attending. One group of seven pupils from the Oxford area school were ninth graders.

The practicing engineers, who lectured on civil, electrical, aeronautical, mechanical, metallurgical, chemical, etc., engineering, set up elaborate displays which they used in their talks. Twenty-two engineers participated in the seminar under the direction of Peter J. Short, Jr., Downingtown, chairman; Albert Eaches, Phoenixville, president of the County Chapter; and Klaus Hochschwender, Pughtown, vice president of the County Chapter. Several Downingtown faculty members assisted.

Preparation for this project required considerable work on the part of the committee chairman and members of the Chapter.

Since the Chester County Chapter employs a publicity consultant, extended coverage was obtained throughout the county in various media: person-to-person contacts, radio, and newspaper coverage.



Shown are some of the students who attended the Student Guidance Seminar. Albert Eaches, president of the Chester County Chapter, can be seen in the center of the photo pointing to the exhibit. Peter J. Short, Jr., Downingtown chairman, is at the extreme right.

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Meeting

(*Continued from page 25*)

ENGINEERS-IN-EDUCATION SUBCOMMITTEE

The activities of the Engineers-in-Education Subcommittee during the past year can be placed in three main categories:

1. Arrangement of the Conference on the Professional Development of the Young Engineer in Education to be held during the annual meeting of NSPE in Dallas, Texas.

2. Study and review of the periodic report of the Ad Hoc Committee on Federal Policy for Engineering Education.

3. Continued study of salary statistics, particularly as they apply to engineering teachers.

The Subcommittee has followed closely the work of the Ad Hoc Committee on Federal Policy for Engineering Education and extends congratulations to that Committee and especially to its chairman, Dr. Clark Dunn, for the excellent work which was performed. It was gratifying to learn of the favorable reception by the Board of Directors of the final report of the Ad Hoc Committee. The official actions of the Board were equally gratifying. With regard to one point in this connection, the Subcommittee feels that the

What Is NSPE Doing? Read These National Committee Reports.

policy of paying a premium to good high school science and mathematics teachers will be the most effective way to secure the desired number in these subjects. Too many secondary schools have mathematics teachers making a feeble attempt to teach physics or chemistry or vice-versa. As long as this condition exists, there will be a deficit in the background of students entering college for an engineering education.

The report on the salary survey conducted by the Special Surveys Committee of Engineers Joint Council is now available. It is titled "Professional Income of Engineers 1956" and provides information on the earnings of engineers in industry, in government, and in education. It is noted on page six of the report, speaking of information gathered on engineers in education, "These questionnaires provided considerably more information than was utilized for this report, such as relation of income and salary to geographic location, type of institution, etc. In order to fully utilize this significant information, the data has been turned over to the appropriate committee of the American Society for Engineering Education for further processing and evaluation. It is assumed that this Committee will separate the calendar year and academic year so that the information will be more meaningful to the colleges."

The Subcommittee has been awaiting this EJC report while considering the advisability of NSPE conducting a salary survey of its own, with respect to earnings of engineers in education. Being familiar with the kind of information obtained from 4,081 individual engineering educators in the EJC survey, we feel that NSPE should not conduct a survey of its own at this time. The Board should await the special treatment of this data by ASEE and base further actions thereon.

The EJC report covers a total of 107,832 engineers in industry, government, and education and would certainly be of interest to other committees. It has a number of tables and charts showing annual earnings by year of entry into the profession, broken down according to employment activity.

Board Action: Report Received

ENGINEERS-IN-INDUSTRY SUBCOMMITTEE

RECOMMENDATIONS:

1. That the statement of NSPE policy on the necessity and importance of communications between engineers and management be approved.

2. That NSPE furnish to libraries of engineering schools, without charge, a complete file of NSPE reports, studies and publications pertaining to employment conditions of engineers, including future publications and the several monthly NSPE publications of interest to engineering students.

3. That NSPE offer to each student chapter of the technical and professional societies, through the faculty counselors of the student chapters, the monthly Engineering Employment Practices Newsletter and Legislative Bulletin, and that attention be called to the basic NSPE material in the engineering libraries furnished by NSPE for the use and guidance of students.

4. That NSPE recommend to each member state society that it appoint one or more qualified speakers to address engineering students at engineering schools in the state on industrial relations and employment conditions within the engineering profession, with the approval and consent of the deans of engineering; supporting material and information may be furnished the designated speakers by NSPE.

5. That the NSPE Board commend the Kansas Engineering Society for its initiative in publishing the two excellent pamphlets, "Engineers—Creative Thinkers or Mere Technicians" and "Engineers—Assets or Liabilities;" that copies of these pamphlets be circulated to other member state societies with the recommendation that each of them consider similar publications for distribution within their own states.

6. This Subcommittee supports and urges approval of the recommendation of the Engineers-in-Employ-of-Private Practitioners Subcommittee that NSPE support an amendment to the proposed Taft-Hartley Act amendments pertaining to the construction industry to make it clear that any certification-without-election plan will not embrace professional employees of construction contractors.

OTHER SUBCOMMITTEE ACTIVITIES—In addition to the subjects discussed above, the Subcommittee has been concerned with the following additional subjects:

A. *Conference Kit*—The conference Kit on Engineering Employment Practices has been distributed to all state societies and a number of requests for additional copies have been honored. It is recognized that it will take some time to implement the suggestions for state conferences and local meetings, but we urge all National Directors to use their influence to insure that progress is being made along these lines. We would like to see at least one state conference on employment practices held or definitely planned by the end of this year. To accomplish this, work must start without delay. Again, if your state societies need further information or literature, let us know. The Subcommittee will shortly issue a memorandum to all state society presidents asking specifically if the state society has established an employment practices committee, the name and address of the chairman, the status of the plans for a conference and when and where it will be held. With the concurrence of the state society we will make direct contact with the state chairman to offer our help in any way possible.

B. *Status of Pending Items*—

1. The New Jersey Society is continuing its contacts with the management and engineering personnel at The Texas Company, Westville, New Jersey, offering its assistance in developing solutions to problems in the employment relations field. Substantial progress is reported through interest in registration and membership in the professional society, and in supplying the information to both the company and the engineering employees. It may interest the Board to know that our last report on this subject was referred to in the April 1 issue of "White Collar Report," published by the Bureau of National Affairs, with the editorial comment that the handling of this situation was the start of further NSPE activities along the same line. The story made it clear that NSPE action in such problem situations would be along professional (non-bargaining) lines through joint discussion, study and proposed solutions arrived at co-operatively between management and the engineers. We urge all state societies and chapters to be alert to problem situations affecting engineers in their area and to offer their services in helping management and the engineers to arrive at mutually satisfactory solutions in accordance with professional principles.

2. Since the District Court victory in the Buffalo-Westinghouse Case, the NLRB has appealed the decision to the United States Court of Appeals for the District of Columbia. NSPE is continuing its "friend of the court" role and filed its supporting brief on May 10. The NLRB appeal was based almost completely on the ground that the courts are without jurisdiction to review representation determinations, even if made contrary to the express provisions of the law. This case is of extreme importance to the engineering profession because it tests, in effect, whether the professional provisions of the Taft-Hartley Act are enforceable, or may be employed only at the discretion of the NLRB and to the extent the NLRB sees fit.

3. It is assumed that the members of the Board know of the tremendous and significant victory scored by the professional engineers at the Minneapolis plant of Minneapolis-Honeywell. Contrary to the advance claims of the UAW and the ESA that they would win on the first ballot, or at least on a run-off, the professionals voted overwhelmingly for "no union," 396 votes for neither union, compared to 304 for UAW and only 197 for ESA. And this victory was all the more striking by virtue of the fact that the technicians also voted for "no union," by a vote of 404 to 254 for UAW and 62 for ESA.

Throughout the developments in this situation NSPE extended its full co-operation to the Minnesota Society, and particularly its Engineers in Industry Section. An NSPE observer went to Minneapolis to confer with the state society officials directly concerned and to offer such advice, literature and information as would be helpful. The developments were watched day to day and, at the request of the Minnesota Section, Committee Member Langenwalter made a special trip to Minneapolis to discuss related experiences of engineers in other places in meeting their employment problems on a professional basis.

C. *Miscellaneous*—Other Subcommittee studies and activities, which are continuing in all cases, have involved: Securing speakers for the Engineers in Industry session at this meeting; liaison with the EJC Committee on Employment Conditions, including attendance of a representative at their meetings; and study of a Canadian plan for the certification of engineering technicians. The Subcommittee is still keenly interested in the development of a course in professionalism for engineering students, and the establishment of student membership in NSPE through state-sponsored student chapters. Both of these subjects have been or will be referred to other NSPE committees for detailed consideration.

Finally we wish to express our appreciation to Vice President Dyer who, as chairman of the Employment Practices Committee, attended our Subcommittee meetings, gave us invaluable information and his full support and encouragement.

Board Action: Recommendations Approved

ENGINEERS-IN-GOVERNMENT SUBCOMMITTEE

The Engineers-in-Government Subcommittee reports several actions described below on the basis of the Board's actions at the Charleston meeting last February.

Moss-Gubser Bill—The legislation to establish a separate professional classification for Federally-employed engineers, scientists and other professional categories, was approved in principle and the Subcommittee was given authority to propose revisions and additions to the list of employees to be covered, and to propose a suitable registration requirement in the bill at an appropriate level.

A careful review of the coverage of engineering positions now listed in the bill indicated that certain categories were omitted which by title and definition of duties should be added. Accordingly, a list of suggested additions was prepared and presented to the Senate and House Civil Service Committees.

The question of a recommended registration requirement was given careful study by the Subcommittee, and various alternative approaches were considered. Obviously there were several ideas for an appropriate level at which the requirement should be imposed, and several possible standards to arrive at a determination were employed. It will be recalled that present NSPE policy calls for a registration requirement at GS-13 and above ($8,990-$10,065). The sense of the Board at Charleston was that the conversion of GS-13 to SPS-9 in the Moss-Gubser Bill would put the registration requirement at a salary level ($12,910-$13,930), such that a lower grade should be the dividing point.

After reviewing the several possibilities, it seemed that the most appropriate point under the Moss-Gubser Bill would be *SPS-5* ($8,710-$9,610). It is very unlikely that a young engineer would progress through SPS grades 1 to 4, inclusive, in less than four years, particularly if it is recognized that much of the rapid promotion in recent years has been due to the current low salaries, in relation to industry, and that the only way to increase the compensation in order to hold these engineers in the Federal service has been through a more-than-normal promotion rate. This probably will not be the case if the Moss-Gubser Bill passes, because more adequate salaries are provided.

It is further noted that the decision to recommend a registration requirement starting with SPS-5 represents some tightening of the present NSPE policy in that the comparable salary figures are lower. A registration requirement at SPS-5 will permit the young engineers to enter Federal service and progress for a normal period prior to their full registration, but to go past SPS-4 they would have to comply with a state registration law.

To date the legislation in the House has not been acted upon. On March 26, 1957, a memorandum was sent to all state societies asking them to direct official letters to the members of the House and Senate in support of the Moss-Gubser legislation, and requesting that hearings be held at an early date. If your state society has not acted along this line we ask that you request such action upon your return from this meeting. Individual letters from the members will also be helpful in this regard.

On the Senate side, a companion bill by Senator Johnston (S. 1326), chairman of the Senate Civil Service Committee, was scheduled to be the subject of hearings, along with other Federal pay legislation, starting May 20, 1957. We were accorded permission to testify in support of the Johnston Bill and, at the same time this report was written, our testimony was being prepared along the lines indicated above. The full NSPE testimony will be printed in the AMERICAN ENGINEER, and a report on the hearings will be contained in the next issue of the *Legislative Bulletin*.

Registration Requirement in Federal Safety Bill—A further committee activity in the legislative field pertained to a bill sponsored by fifteen senators to provide for the reorganization of the safety functions of the Federal Government (S. 931). Our official interest in this bill is confined to the provision calling for the appointment of "not less than ten qualified safety engineers . . ." to carry out the functions of the proposed Federal Safety Division. Here we have another opportunity to press for a registration requirement, on very logical grounds that the engineers to be appointed will deal with safety—which is, of course, the heart of the reason for state registration laws. The Subcommittee is suggesting that the bill should be amended to add the following phrase to the appointment requirements pertaining to the engineers, "and who are registered under the appropriate professional engineering registration laws of any State, Territory, or Possession of the United States, or of the District of Columbia."

If this provision is included it will serve the additional purpose of establishing a precedent as a basis for a registration requirement in future legislative acts where appropriate.

Panel Discussion—The other major activity of the Subcommittee has been the arrangements for the Engineer in Government discussion at this meeting. We were fortunate in being able to obtain the services of well-informed professional engineers to give us comments and suggestions from the standpoint of the Federal Government operations and the state and local government operations with respect to engineering personnel.

RECOMMENDATION: That the Board authorize the formation of a functional section for engineers in government, and that the present Committee on Engineers in Government be instructed to proceed with the necessary details for the organizational structure of such functional section.

Board Action: Recommendation Approved

ENGINEERS-IN-EMPLOY-OF-PRIVATE PRACTITIONERS SUBCOMMITTEE

RECOMMENDED FOR BOARD ACTION

The NSPE staff has reviewed with this Committee proposed amendments to the National Labor Relations Act which have been introduced by Senator Smith of New Jersey (S. 1614).

Under the Smith amendment, there is a provision which would authorize the National Labor Relations Board to certify unions acting in behalf of employees of building and construction contractors as exclusive bargaining representatives of such employees without a prior election as now required by Section 9 (b) (1) of the Taft-Hartley Act. Section 9 (b) (1) entitles professional employees to a separate election to determine whether they want to be included with nonprofessionals for collective bargaining representation or even not to be represented by any union. According to the language of the proposed amendment, the National Labor Relations Board may certify a labor organization as the exclusive representative of *all* employees of a building and construction contractor. Stuart Rothman, solicitor of labor under Secretary of Labor Mitchell, has informed Paul Robbins that "there would be no greater possibility, under the proposed amendment, of professional employees being included in a bargaining unit against their desires than there is at the present time." Nevertheless, this Subcommittee recommends that NSPE propose that the Smith Bill be amended by adding the words ("except professional employees") in appropriate places. Such an amendment would remove any doubt as to the applicability to professional employees of the Administration's proposal. It would declare, by express language, that the certification-without-election provision does not include professionals.

PROGRESS REPORT

Since our last report, this Subcommittee has been corresponding in matters relating to the publication of the Report on the Survey of Engineers Employed by Private Practitioners and regarding plans for the program with the Functional Section at the Dallas meeting.

The Survey Report was published early in May. Reprints of an article in the AMERICAN ENGINEER were sent to all of the consultants who received a copy of the questionnaires. These consultants were told that NSPE would mail them a free copy of the Survey Report if they requested it.

John McFee, P. E., who resides in Arlington, Virginia, attended the meeting of the Engineers-in-Industry Subcommittee held April 27-28 in Washington. This is the third meeting in which a representative of our relatively young Subcommittee has been able to

compare problems and search out solutions with our counterparts who work for industries. We feel that these meetings have proven highly beneficial in the study of problems involving unions, in consideration of matters regarding nonprofessionals and engineering technicians, in the field of employer-employee relationships, and in the cultivation of professionalism among engineering employees.

We have made a cursory preliminary review of union activities among engineers employed by consultants and by builder-contractor engineering organizations. Although there have been examples of avowed union intentions, we have found little indications of union organizing progress among professional or, nonprofessional employees. However, our investigation has been too limited in scope to warrant any conclusions other than the positive approach of eliminating the conditions on which unionism breeds. If the engineer in private practice can mold his organization to promote feelings of co-operation among his employed engineers; if his engineers know that they are working on projects which are of importance to the welfare of mankind; if the employee is doing interesting work and is growing as a part of a recognized team; if a spirit of consideration for the feelings of others permeates the engineering firm; if a sense of professional pride is in the atmosphere; then, union organizers will find it advantageous to attempt their organizing activities in other fields.

An analysis of our survey indicates that there is much to be done by the employer and employee to improve the economic position and enhance the professional status of engineers employed by private practitioners.

Board Action: Recommendation Approved

EDUCATION

If the young engineering student is finding it increasingly difficult personally to finance his collegiate education and Federal subsidy of higher education is not to be tolerated, then other suitable sources of funds must be explored.

The Education Committee plans as a result of its preliminary study of this subject to investigate the following:

1. The augmentation of engineering education by the State and local government.

2. Increased and organized industrial aid to engineering education.

3. Aid to engineering education by the organized engineering societies.

4. Other sources of aid at the local level.

In many states and locales a young man with technical ability and tendencies but who in the strictest sense is not top collegiate timber has no choice of selection. He may either attend the state university or find a job. Studies of your Education Committee during the year reveal that a disporportionate per cent of our youth are attending institutions of higher learning lacking in the proper attitude, background, or intelligence. Our study also reveals that there is a real shortage of draftsmen, technicians, inspectors, and engineering aids in general. This shortage can only be partially met by engineering school graduates and then at advanced cost. The Education Committee plans in pursuing its program to study:

1. The national picture insofar as technical school graduates are concerned.

2. What is the national demand for technicians.

3. Future and long-term plans for various types of technical institutes.

In order that the Education Committee better integrate the engineering graduate into the engineering profession other studies are now in progress.

1. A study which would reveal the extent to which engineers are being properly utilized and the degree to which they are devoting their time and efforts to tasks which could be accomplished by subordinates.

2. A study of salaries and compensation in terms of years of experience and in terms of the starting salaries now offered engineering graduates.

3. A study of programs for the adequate training of teachers for engineering educational programs suggests a lack of knowledge and effort on the part of administrators to plan adequately for the demands of the future. More and better engineers can only result if universities purposefully select and train better teachers.

4. Educational programs should provide training which would assist and encourage engineers to better integrate into affairs of government. The public must be educated to the fact that engineers are valuable adjuncts to governmental bureaus, commissions and legislative bodies.

5. While the Education Committee is appointed at the national level its activities should integrate with those of the state and local chapters through exchange of ideas and pooling of efforts.

6. The Education Committee has commended a study of the many surveys of requirements for engineering graduates. It was contemplated during the past year that NSPE might sponsor a survey of requirements for engineering graduates to better determine where engineers are needed, in what numbr, and for what type of work. Inasmuch as over twenty such surveys are now in progress, this Committee of NSPE is accumulating the data and ultimately will arrive at a valid conclusion of the entire picture.

Board Action: Report Received

Know Your Society! Read These National Committee Reports.

ENGINEERING PREPARATION

At the February meeting the Board approved the following recommendations of this Committee:

"1. Ask each state society and each chapter to refer the problem to state and chapter education committees, and to suggest that chapters devote at least one meeting a year to open discussion and review of the work done and of new suggestions for the improvement in the teaching of mathematics and science in grade and secondary schools.

2. Authorize the NSPE Committee on Engineering Preparation to supply state and chapter committees information on the various facets of the problem, on other organizations working in this area, and on the literature available. State and chapter committees would thus be assisted to become local centers which could create interest and obtain support of civic and other organizations in the community to promote better education in mathematics and sciences."

The Committee further recommended that some staff facilities be made available to it to do the necessary work. This request was referred by the Board to the Executive Committee. We have been informed that because of financial limitations it has not been implemented as yet. It is hoped that the necessary work can be accomplished by the next year's Committee in time to make helpful material available to the chapters by fall.

In the area of the sponsorship of high school clubs, it will be recalled that the Board has recommended that the state societies and chapters sponsor such clubs in the local high schools. As a result of this action, the headquarters has been receiving requests for information on responsibilities of sponsorship, organizational procedures and programs on which such clubs might embark. Several chapters have already sponsored "Future Engineers of America" clubs. However, there has been little interchange of ideas and experience between these clubs.

At a March conference with our Michigan Society members, attended by our Executive Director, faculty representatives of Michigan State University responsible for the JETS (Junior Engineers in Technical Society) program indicated considerable interest in obtaining NSPE co-operation for the distribution of JETS literature and information. The JETS organization was started originally by Michigan State University in the State of Michigan and has now spread to several states, with state-wide co-ordination having been established in several instances. Some NSPE chapters are acting as sponsors for the local clubs. There are some 296 JETS clubs now organized.

Through a recently established foundation, the JETS hope to obtain sufficient funds to continue central staff work and development and printing of literature. The NSPE chapters could provide contacts with local schools and supply them with kits and literature furnished by the JETS.

The JETS literature consists of club operations material, program suggestions and material, and a list of some 250 pamphlets and reprints of various articles providing information about engineering in general, specific fields of engineering, etc. All this material is supplied upon request free of charge to members of JETS clubs.

The Committee is in agreement that the NSPE should adopt as a part of its national program a policy of active participation in the encouragement of organization of high school clubs, in vocational guidance, career days, and science fairs.

The Committee is divided as to the extent to which NSPE should become identified with any particular group of high school clubs.

An expression of opinion by the Board would be most helpful in guiding the activities of the Committee.

Board Action: Recommendations Approved.

ENGINEERS' WEEK

The observance of National Engineers' Week during February 17-23, 1957, was considerably more extensive than ever before. The reports and publicity clippings received at the National Society headquarters indicate that the 1957 Week showed a definite and large increase in the amount and quality of public support for the events scheduled by local chapters and state societies.

The financial statement on the Week shows a total of $12,274.13 as having been spent by the National Society. Sales of promotional items brought in $5,481.64, leaving a net expenditure for the National Society of $6,792.49.

Increases were noted over past years for all the promotional items offered by the National Society. A total of 8,700 booklets on the Week were distributed throughout industry. The AMERICAN ENGINEER film, produced by Jam Handy for Chevrolet and made available to NSPE chapters, was booked for showing by approximately 250 groups. This film was shown an estimated 1,000 times, and was an outstanding item in the materials used to reach the general public during the Week.

RESULTS OF QUESTIONNAIRES ON THE WEEK

A two-page questionnaire concerning the promotional items furnished by NSPE was sent to each local chapter. To date, 110 questionnaires have been returned. The information received on the questionnaires will be used by the Committee and staff in planning and producing the 1958 promotional material.

RECOMMENDATIONS:

1. It is recommended that efforts be made to obtain a film similar to the AMERICAN ENGINEER that can be distributed during the 1958 Engineers' Week.

2. It is recommended that local Engineers' Week chairmen for the 1958 observance be appointed by early in the fall so that preliminary planning can begin at the local level at that time.

Board Action: Report Received

ETHICAL PRACTICES

Six items of unfinished business were received by this Committee.

56-1 *Uniform Telephone Listings*

A meeting with A.T.&T. "Yellow Pages" officials took place in New York on April 19, 1957. While these officials were receptive they pointed out that NSPE was a minority group; that the type of listing suggested by NSPE was not practical; and that the local companies controlled the type of listings in their areas.

RECOMMENDATION:

The 1957-58 committee should develop a more realistic type of listing (See Item 57-8) and a plan for uniform "peaceful penetration" by every chapter and state society to be used in conjunction with the "frontal attack" on A.T.&T. by NSPE.

56-2 *Advertising and Free Engineering Services*

NSPE policy on advertising is covered by Statement of Policy #20 adopted by the Board in June, 1955, while Statement of Policy #24 adopted by the Board in June, 1952, covers NSPE position on Free Engineering.

RECOMMENDATION:

Future activity of the Committee on these subjects should be continued to giving opinions, based on established policies, on specific cases referred to it.

56-3 *Loan of Engineers*

Statement of Policy #18 on Employment of Engineers by Contract was adopted by the Board in June, 1952. The widespread, loose application of the designation "engineer" to designers and draftsmen has apparently caused confusion. The loan or employment by contract of designers and draftsmen from reputable organizations is recognized as beneficial for employee and employer.

RECOMMENDATION:

Future activity of the Committee on this subject should be continued to giving opinions, based on established policy, on specific cases referred to it.

56-4 *Education on Ethics*

It is very difficult to secure authors for articles on ethics.

RECOMMENDATION:

This should be a continuing activity. Every national director should try to develop interest in this subject in his state society and its chapters.

56-5 *Procedures for Handling Violations of Ethics*

These procedures were reviewed by the Committee at its meeting in Charleston in February. The attention required by other subjects has delayed their publication.

RECOMMENDATION:

The 1957-58 Committee should complete this item.

56-6 *Booklet on "Ethics for Engineers"*

This item has required by far the most effort. The Committee (with the exception of Bruce P. Barber, who was hospitalized) acted as a panel during an all-day, open discussion of the "Rules of Professional Conduct" portion of proposed booklet. Many helpful suggestions were received. The meaning and wording of the "Rules" were carefully considered by the Committee in closed sessions during the next day and a half.

RECOMMENDATION:

The Committee recommends early publication of the booklet as presented in the draft in a form suitable for distribution to every member, to state societies and chapter, to ECPD and its constituent societies, to NCSBEE and its member boards, and to any other person or organization interested in engineering ethics.

Eight new items of business have received attention by the Committee.

57-1 *California Plan for Local & State Engineers' Boards of Ethics*

The California Society believed that the status of engineers could be improved by closer observance and better understanding of the Canons of Ethics. It has had some success with meetings of their state and chapter Ethical Practices Committees with observers from other engineering societies. Educational material for engineers, the public, and management was developed in these meetings and specifically requested investigations of alleged unethical conduct could be discussed.

RECOMMENDATION:

This plan is recommended for consideration by state societies and chapters where its application would be beneficial.

57-2 *South Carolina Competitive Bidding Situation*

Director King Rouse has advised that this situation appears to be getting under control.

57-3 *Survey on Ethics by Consultants' Functional Group*

This Committee has not received the final report.

57-4 *Question on Advertising*

A specific question on advertising by a member in Washington State was considered and an opinion was given.

57-5 *Question on Employment Methods*

A specific question on employment methods of large corporations from a member in Illinois was considered and an opinion was given.

57-6 *Survey of Registration Boards*

A survey was made of the NCSBEE member boards to determine the extent to which a code of ethics is a part of their application for registration. A code of ethics is a part of the application forms of sixteen of the forty-eight boards responding.

57-7 *Ethics and Practice Committee Procedures for Chapter Handbooks*

A draft of sheets for the Chapter Handbooks has been compiled.

RECOMMENDATION:

The Committee requests approval for publication and distribution of these sheets to be used as a guide for the activities of state and chapter Ethics and Practices Committees.

57-8 *Survey of Chapters on Telephone Listings*

A single sheet, prepaid return questionnaire sent to all chapters in connection with telephone listings resulted in 169 replies (about 50 per cent). Eight per cent reported listings in accordance with NSPE form recommended; 67 per cent reported no effort to request NSPE recommended uniform listing.

RECOMMENDATION:

The recommended uniform listing should be revised so that it will receive active support from an overwhelming majority of chapters and members. (See Item 56-1)

Board Action: Recommendations 56-1, 56-6, 57-1, 57-7, 57-8 Approved

BOARD OF ETHICAL REVIEW

Establishment of the NSPE Board of Ethical Review was authorized by the Board of Directors in June of 1954. For various reasons . . . this newly created Board has not yet functioned as originally intended.

The Board of Ethical Review was originally intended to assist various state societies in one of their most difficult areas of administration. This is the problem of assuring that the members of those state societies do not violate accepted and acceptable practices of engineering.

Alleged violations of ethical practice fall into two general categories. The first of these includes those cases for which the allegation pertains to a direct violation of expressed codes or statements of practice. These can be disposed of by the state societies with no outside help, except when they involve more than one state and thereby become a problem for the NSPE Ethical Practices Committee.

The second category is more numerous and pertains to allegations of a border-line nature. An opinion whether alleged acts of this nature do or do not violate either established codes or the concepts of ethical practice must be based upon considerable personal judgment. These cases present a serious problem to the Ethical Practices Committees of the state societies because it is extremely difficult to arrive at a non-prejudiced decision when acquainted with the individuals involved. It is even more difficult to convince all interested parties that such decisions are not prejudiced.

It is believed that NSPE could render a service to the state societies by creating a body of qualified individuals who could review the borderline cases without prejudice, and it was in accordance with that belief that the committee regarding the establishment of an NSPE Board of Ethical Review presented the attached report to the Board of Directors in June 1954. That report recommended the establishment of such a Board with specific requirements regarding membership and with five specific duties. The entire recommendation was approved by the Board of Directors without modification. The only modification to date was an action during the October 1956 meeting which provided that the rules of the Board of Ethical Review be modified to allow the president of NSPE to appoint the chairman of the Board.

The first three established duties of the Board set forth procedures for receiving and acting upon the requests of state societies. Attention is directed to three conditions:

1. That all requests are to be made by the state societies. This does not permit requests or complaints from individuals or chapters except where submitted through a state society.

2. The state societies are to be constantly reminded that a unanimous opinion of the Board is to be sent to the requesting state society with the understanding that it is merely an opinion to be used by the state society as it sees fit. Particular attention is given to the consideration that such opinions shall not be regarded as established policy which has been adopted by NSPE.

3. If the Board is not unanimous in its opinion, both majority and minority reports shall be forwarded to the Executive Director for transmission to the state society. The state society only may submit the case to the Executive Committee of NSPE for consideration.

The fourth and fifth established duties pertain to actions by NSPE. The fulfillment of these duties will undoubtedly be of value to NSPE but are certainly secondary to the primary objectives as set forth in the first three duties.

This review of the concept of the Board of Ethical Review has been presented because of an obvious lack of understanding, at all levels, of the purpose for which the Board was created. A review of the files of the Board of Ethical Review indicates, without doubt, that the state societies have made no attempt to avail themselves of the service which has been offered. It is believed that this inactivity is the result of lack of understanding of the nature of the service which is offered. Lack of activity by the Board itself must also be considered a factor.

The Board of Ethical Review has now conformed with the requirement that it establish its own rules of procedure and is ready to perform the service for which it was constituted. Authorization of the staff services required for the implementation of these procedures is requested.

It is believed that the state societies and the individual members should be advised of the existence and purpose of the Board of Ethical Review. This should be accomplished by a letter to the appropriate representatives of the state societies and by a news release in the AMERICAN ENGINEER. Both of these should be prepared through cooperation of the staff and the Board. Authorization of these staff services and of the attendant expenses is also requested.

RECOMMENDATION:

It is recommended that the Board of Directors, by approval of this report, authorize the staff services and expenses which are requested herein.

Board Action: Report Approved

COMMITTE STRUCTURE STUDY

This Committee was established in 1955 by Board action, with a directive from the president dated December 28, 1955, to review and redefine the duties of the standing and special committees, particularly in light of the recent administrative groupings of these committees.

RECOMMENDATION NO. 1

A. That the present informal practice of establishing departmentalized areas of society interest be formalized in the Bylaws in a manner consistent with the following:

Professional Development—(presently Education and Professional Development)—including all phases of individual development from the point of encouraging young people to take an interest in selecting an engineering career, through secondary and college education, through EIT and PE registration, to their well-developed and integrated status in the profession.

Professional Employment—(presently Professional Practice)—including all of the conditions of employment in the profession.

Professional Relations—(presently Interprofessional Relations)—including the co-ordination of all matters of the Society with related professional (engineering) and technical societies, and with other professions.

Public Relations—including the development of public consciousness, recognition and evaluation of the performances of the engineering profession.

Organizational Functions—(presently Activities)—including the items of activity by which the Society has frequent occasion to communicate with state societies, chapters and individual members.

Policy Operations—(presently Operating and Services)—including the items having to do with the co-ordination of policy development and application, and the carrying on of business operations.

B. That one of the six vice presidents be assigned by the president to each of the foregoing areas of interest with responsibility to the president for policy and practice development within that area, administration of the committees serving that area and co-ordination of the work of that area with the work of all other areas or units of the Society. The vice presidential authority shall be commensurate therewith.

C. That the committees to serve the above areas of interest shall be:

Professional Development

Education, Registration, Young Engineers

Professional Employment

Employment Practices (sub-committees—Engineers in Education, Engineers in Government, Engineers in Indus-

(*Continued on page 43*)

CLASSIFIED ADVERTISING

Minimum 3 lines.
Undisplayed, $1.80 per line. Three or more consecutive insertions $1.50 per line each.
Displayed: Same rate as General Advertising.
Positions Wanted: Undisplayed, 90c per line. Three or more consecutive insertions 75c per line each. Displayed: General Advertising rates, less 50%.
Box Number chargeable as one line.

Mail Box Number replies to:
AMERICAN ENGINEER
2029 K Street, N.W. Washington 6, D. C.

Positions Wanted

Architect and Engineer, registrations in Texas. Ten years experience, three degrees. Broad experience commercial industrial buildings and plants. Desires position with heavy responsibility including client relations and management. Would consider partnership associateship. Box 701, AMERICAN ENGINEER.

Positions Available

Trailer Manufacturer Needs Chief Engineer

Midwest trailer manufacturer needs experienced structural engineer as chief engineer of firm. Figure stress, load distribution and allied information. Age 30-45 preferred but not essential. Located in pleasant midwest medium-sized city. Write in confidence and tell us about yourself, age, experience, etc.

SALARY OPEN. Box 702, AMERICAN ENGINEER.

Wanted:
STRUCTURAL ENGINEER
Prestressed Concrete Field

We are continuously expanding our operations in the concrete products industry because of our faith in the future of Mississippi.

We are seeking the services of a qualified structural engineer to work in our prestressed concrete division.

This is a new and fascinating field in its embryo stages in this country.

Contact us for an interview.

JACKSON READY-MIX CONCRETE
P. O. Drawer 1292—Tel. 3-1677
JACKSON, MISSISSIPPI

Testimony

(Continued from page 51)

were available and competent to perform the identical work.

This problem of the Federal Government engaging in business-type operations in competition with private enterprise has received the attention of Senator McClellan and others who have sponsored Senate Bill 1539, the "Anti-Government-Competition Act." Senator McClellan has stated that the bill declares it to be the policy of Congress that the Federal Government should not engage in business-type activities, except in the public interest or in furtherance of national programs and objectives established by statute. It further provides, to the maximum extent possible, for the termination of all business-type activities engaged in by the Federal Government to the detriment of private-business enterprise.

The term "business-type activity" of the Federal Government, to which this bill refers, is defined as "any activity involving the production of goods and *the rendition of services* commercially available from private business." (Emphasis added).

A further reason for not granting TVA the authority to render engineering services to outside parties is that the offer and furnishing of professional engineering services is subject to the state engineering registration laws which are in existence in every state of the United States and its territories and possessions, as well as the District of Columbia.

While TVA could perform engineering services for itself, and the Federal Government, as a superior entity to state laws, could perform engineering services for itself, a completely different situation is presented when there is an undertaking to perform services for third parties. The grant of authority, as contained in S. 1869, would conflict with the state engineering registration laws, as it is certain that TVA as a Government corporation is not licensed under any of the state laws to offer and perform professional engineering services for others.

It has been claimed that the reference to engineering services in S. 1869, is confined to the facilities which would become a part of the TVA power system as a result of the increased revenue from bond financing. This, however, does not tend to lessen or detract from the fact that TVA still would be rendering engineering services to outside parties whose only connection with TVA is that TVA might purchase the output from such plant or other facility.

At the 1955 hearings which this Subcommittee conducted on S. 2373, to which I previously called your attention, the provision authorizing TVA to perform engineering services was thoroughly discussed in a colloquy between Senator Kerr, Senator Hruska and Mr. G. O. Wessenauer, Manager of Power, TVA. In the course of the discussion it was stated by Mr. Wessenauer that TVA would be given the authority to provide engineer services in connection with a generating plant or facility under the arrangement of a lease, lease-purchase, or a purchase of the output. Regarding TVA's interest where the only connection would be the purchase of the output, Senator Hruska had this to say: "If you are going to contract for the purchase of an output of a plant at X mills, it just seems to me that in the normal contractual situation that the purchaser of power under that kind of a situation isn't concerned too much with the engineering and planning department to the extent that it will produce the quantity of merchandise which he contracts to buy." The implication is obvious that authority to offer and perform engineering services is not warranted where TVA has entered into an arrangement where TVA's sole interest would be in acquiring the output of a plant or facility.

At page 215 of the published 1955 hearings on S. 2373, Senator Kerr suggested the phrase "or for the purchase of the output thereof" be eliminated from the grant of authority as contained in the bill. The sentence then would read—"In connection with the construction of a generating plant or other facilities under an agreement providing for lease or purchase of said facilities or any interest therein by or on behalf of the Corporation, the Corporation may * * *" etc. However, there would still remain the phrase: "or any interest therein by or on behalf of the Corporation," which establishes a very broad test to determine the degree of TVA connection with any plant or facility so as to justify the rendition of engineering services by TVA as authorized in the bill.

The National Society of Professional Engineers questions the necessity of this grant of authority to TVA in view of the practice of other Federal agencies which permits parties with whom these agencies contract to procure their own private engineering services in connection with contemplated projects. We refer specifically to the present Lease-Purchase Program whereby private groups finance and construct buildings which the Federal Government occupies under a long-term, lease-purchase arrangement. In these situations, the groups constructing these buildings engage the services of private engineering firms, without Federal interference. These operations occur in connection with an arrangement which involves a closer tie-in to the Federal Government than merely the purchase of the output of a plant or other facility. If the Federal Government does not deem it necessary or indispensable to provide engineering services in connection with the lease-purchase of Federal buildings, we fail to recognize the absolute necessity for TVA to impose its engineering services on those plants or facilities from which TVA merely contemplates the purchase of the output.

Questions along this line were asked of Mr. Wessenauer by Senator Hruska at the 1955 hearings. The Senator inquired: "* * * what would you think of this letter of the National Society of Professional Engineers if the situation was one in which you agreed to buy the output of some generating plant? You would then go in there and do all the planning, engineering, and designing for that company that was going to build that plant. Would that not be invading the province of the professional engineer and the planners who are represented in the National Society of Professional Engineers?"

If we may interject a reply to the Senator's query our emphatic answer would be that such activities of TVA would definitely be invading and interfering with private professional engineers who are competent to render services identical with those offered by TVA.

The National Society of Professional Engineers does not wish to indicate any opinion on other aspects of S. 1869, but it is felt that the authorization for TVA to provide engineering services outside of its own organization would be a serious intrusion by a Federal agency into private professional practice and would be at variance with the letter and spirit of existing state laws.

We urge that the Subcommittee delete the authorization discussed here today, and thus indicate its faithful adherence to the principles of noninterference by the Federal Government into private professional pursuits, and compliance with existing state law, designed to protect the public's life, health and property.—***End.***

Meeting

(Continued from page 41)

tity, Engineers in Employ of Private Practitioners, Ethical Practices)

Professional Relations
Inter-society Relations, Interprofessional Relations

Public Relations
Public Relations, Awards, Engineers' Week, National Affairs

Organizational Functions
Membership, State Society and Chapter Activities, AMERICAN ENGINEER, Functional Sections (servicing of).

Policy Operations
Budget, Constitution and Bylaws, Nominating, Resolutions, Legislative

(Note: It is anticipated that certain committees will subdivide their work into informal, unlisted groups.)

In addition to the above six departmentalized areas of interest, the Executive Committee should and can serve as the unit for handling certain specialized committee work, as follows:

Executive Committee
Reserve Fund, History, Board of Ethical Review, Functional Section—Engineers in Private Practice (also other "specific" functional sections)

RECOMMENDATION NO. 2

That the foregoing Recommendation No. 1 be referred to the Constitution and Bylaws Committee for the drafting of appropriate detailed bylaw revision.

RECOMMENDATION NO. 3

That the next administrative year of the Society be conducted in accordance with Recommendation No. 1 pending the formal adoption of bylaw changes covered by Recommendation No. 2 in so far as it is not inconsistent with current Constitution and Bylaw provisions.

RECOMMENDATION NO. 4

That the Committee Structure Study Committee be discontinued as having completed its assignment.

Board Action: Recommendations 1, 2, 3 Approved

INTERPROFESSIONAL RELATIONS

The principal activity of the Committee continues to be in connection with the Standard Forms of Agreement Between Engineers and Architects. There has been no meeting of the Committee since the Charleston meeting of the Board.

Practically all past work on this subject has been in co-operation with the Interprofessional Relations Committee of AIA. The four "Standard Forms had been agreed upon and were published in preliminary form by NSPE last September. It was understood that AIA would edit the forms and publish them about as originally prepared.

In February of this year we were invited by the Office Practices Committee of AIA to attend a meeting on February 25, 1957, in Washington for the purpose of reviewing with them the "Standard Forms." It is one of the functions of that Committee to edit and publish such forms.

It was found that the Office Practices Committee of AIA had (1) made a thorough review of the forms independent of the AIA Interprofessional Relations Committee and (2) had adopted a completely new format.

The reason for this change was to conform with similar forms which AIA has developed for use between architect and client. It appeared to be a far better format than the original and no objection was raised.

The AIA Committee had reworded only one form—"Standard Form of Agreement Between Architect and Engineer." After a thorough discussion of details contained, they agreed to redraft it and submit it for approval. This Form would then serve as a pattern for the remaining three.

Because the matter of "Standard Forms" deals almost entirely with engineers in private practice, it was decided to enlist the aid of the Functional Section for Consulting Engineers in evaluating the new form when it is submitted. Chairman Kirkwood of that Section has been consulted and has expressed great interest and a wish to cooperate in securing a final draft of the forms. The assistance of the Office Practices Committee has also been requested through Chairman Gates.

An important result of the last meeting with AIA was the realization of the importance of inter-committee acivity in NSPE, especially where the subject matter overlaps to the extent that it has in the case of the "Standard Forms."

Board Action: Report Received

MEMBERSHIP

Due to the necessity of preparing this report prior to the completion of the membership year, July 1, 1957, the data presented are necessarily incomplete.

On April 30, 1957, NSPE membership totaled 41,221, a growth of 4,690 since July 1, 1956. Over the same period 4,288 full PE members were added, bringing the total of such members to 37,343, 12.8 per cent higher than last July 1. EIT membership advanced by 499 for a 14.8 per cent rate of increase. We have conservatively estimated that further increases in the last two months of our membership year should just about offset losses due to delinquency on June 30, 1957; and we therefore expect that the above figures will fairly well represent the over-all accomplishment for the year.

While there is little likelihood that the over-all gain in membership this year will reach the 5,600 net additional members requested by President Rhinehart last fall, it is gratifying that the rate of increase is substantially higher than the 6.7 per cent per year experienced in the past.

It is interesting to compare the rate of growth of NSPE with one of the major founder societies, ASME. In the year ended September 30, 1956, ASME experienced a gain of 1,177 members in all engineering grades, a yearly rate of increase of 2.9 per cent. This favorable comparison for our own Society should not be cause for complacency; however, since the membership of ASME, representing as it does only one area of engineering activity, is still approximately the same size as NSPE.

It has been somewhat difficult to evaluate the results obtained by the 6-state mailing program. However, these six states, Alabama, Colorado, Connecticut, Indiana, Minnesota, and Utah, representing 7.1 per cent of our total membership at the beginning of the campaign, and having available to them 7.4 per cent of all prospects, have accounted for 12.3 per cent of the total gain in membership for nine months to date. No state in this group had a rate of increase lower than the rate for the Society as a whole and five of the six states increased their membership at yearly rates higher than 20 per cent. The rate of increase of membership in these states, as a group, was 72 per cent higher than a similar figure for the remaining thirty-six state societies.

In view of these convincing data, the Membership Committee strongly recommends that the membership campaign for 1957-58 include a similar mailing campaign in six additional states plus selected parts of California. The estimated cost of such a program is approximately $5,000.

The time to start planning for another effective membership year is now. Your Membership Committee suggests that every state society make the first order of business after their organization that of appointment of state membership committees as well as membership committees in every chapter, and that the names of chairmen of these committee be sent to the Washington office as quickly as possible. It is only by having available the names of these key people for membership promotion that the National Society can make its contribution by forwarding to them promotional pieces which have been prepared for their use.

Now is the time also to organize the many contests between states with local rivalries which have been so effective in past membership campaigns.

Your Membership Committee wishes to take this opportunity to express our appreciation to all officers and directors of the Society, particularly President Rhinehart, for their enthusiastic co-operation and inspiration during the year.

Board Action: Report Received

NATIONAL AFFAIRS

I. *Background*

The Board of Directors has charged the National Affairs Committee with the following responsibilities regarding the Professional and Internal Administrative Policies of the Society:

A. To review yearly approximately one-third of the Professional Policies to determine their applicability to present conditions.

B. To review all Board actions involving Professional Policies for the year 1955-56 with the view to their inclusion in the Professional Policies booklet, when revised.

C. To compile all Board actions involving Internal Administrative Policies of the Society for subsequent publication

(Continued on page 45)

STRICTLY BUSINESS

Personalities . . . **Frank L. Whitney** and **E. G. Robbins** have been elected to the board of directors of **Walter Kidde Constructors, Inc.**, of New York and Houston, it was announced by **William Collins**, president. **Mr. Whitney** is vice president in charge of engineering of the firm . . . **Alfred A. Rodick** has been appointed chief engineer for **G. Felsenthal and Sons, Inc.**, Chicago, Ill. . . . **The Charles Bruning Company, Inc.**, Chicago, Ill., has named **John R. Hickman** as director of personnel relations . . . **William D. Cleeves** has been advanced to assistant manager of engineering at **Blaw-Knox Company's** Construction Equipment Division, Mattoon, Ill. . . . Promotion of **Spencer J. Kohlmann** to the position of chief engineer, automatic washers, for the St. Joseph, Mich., Division of **Whirlpool Corporation** has been announced . . . **Acheson Colloids Company**, Port Huron, Mich., a division of **Acheson Industries, Inc.**, announces the appointments of **Kurt R. Student** and **Connell J. Gallagher** as service engineers . . . The assignment of **Ralph C. Bunnell** to the vacant post of district engineer at Albany, N. Y., has been announced by J. E. Buchanan, president of **The Asphalt Institute**

Frank L. Whitney

C. Donald McLain has been appointed research and development manager, Western Brass Mills Division of **Olin Mathieson Chemical Corporation**, **J. E. Williams**, vice president and general manager has announced. . . . The appointment of **John B. Burnell** to the newly-created position of assistant chief engineer in charge of advance design for the Rochester (N. Y.) Products Division of **General Motors** has been announced. . . . **The Jay Company**, Columbus, Ohio, announces the appointment of **Jack Jergens** to the post of field manager for their company in the central states. . . . **Lloyd G. Ludwig**, mechanical engineer, has joined the Guided Missiles Research Division, **The Ramo Wooldridge Corporation**, Los Angeles, Calif. . . . **Burns and Roe, Inc.**, have announced the appointment of **John K. Lynch** as management representative to the **Boeing Airplane Company** and as head of **Burns and Roe's** new West Coast office at Seattle, Wash. . . . The advancement of **Roger L. Daniels** to the post of chief engineer of the **Formsprag Company** has been announced by **J. Lawrence Buell, Jr.**, president of **Formsprag**. . . . **Edward J. Healy** has been elected vice president-construction of **The Kuljian Corporation**, Philadelphia, Pa

Jack Jergens

The appointment of two assistant works engineers for the Ashland (Ky.) Works of **Armco Steel Corporation** has been announced. **Warner Kenyon** has been named assistant works engineer in charge of operations and **Lars R. Larson**, assistant works engineer in charge of development and construction. . . . **Joseph R. Greer**, formerly project engineer, has become chief engineer at **Beckman & Whitley, Inc.**, San Carlos, Calif. . . . **Russell L. Sylvester**, chief engineer of **Rockwell Manufacturing Company's** Central Valve Research and Development Department, Pittsburgh, Pa., has been promoted to engineering executive assistant of **Republic Flow Meters Company**, Chicago, Ill., newly acquired **Rockwell** subsidiary. . . . **Millard D. Shriver** has been named vice president-assistant to the president of **Panellit, Inc.**, Skokie, Ill. . . . **Harrison Taylor** has joined the Headquarters Service Division, Engineering Department, at **C & D Batteries, Inc.**, Conshohocken, Pa. . . . **Don C. Atkins** has been named assistant chief engineer of **United States Chemical Milling Corporation**, Manhattan Beach, Calif. . . . **Charles R. Chevalier, Jr.**, has been appointed to the staff of **Rader and Associates**, Miami, Fla. . . . The appointment of **William S. Ivans, Jr.**, as vice president in charge of engineering for **Kin Tel**, a division of **Cohu Electronics, Inc.**, San Diego, Calif., has been announced. . . . **Sterling Swanger** has been named chief methods engineer for the **Maytag Company**, Newton, Iowa. . . . **Jonathan Kludt** has been elected executive vice president and general manager of the **Lincoln Engineering Company**, a division of **The McNeil Machine & Engineering Company**, Akron, Ohio. . . . **John P. Klembeth** has joined **Milton Roy Company**, Philadelphia, Pa

R. L. Sylvester

New Firms . . . **Robert L. Morris** announces the formation of a consulting firm in Baltimore, Md., for the general practice of civil engineering. . . . A corporation to be known as **Precision Instruments, Inc.**, which will import and distribute engineering instruments of foreign manufacture, has ben formed in Troy, N. Y. . . . **Nelson Miner & Co.**, a Texas consulting engineering firm has consolidated operations and moved into new offices at San Antonio where they are associated with a new firm, **Ward Construction Co.**

Expansion . . . **American Oil Company** recently dedicated its new $35,000,000 Yorktown (Va.) Refinery — the sixth plant for the company and the first gasoline refinery ever built in Virginia. . . . **Dravo Corporation** has dedicated a new half-million-dollar Research Center on Neville Island, adjacent to the company's main plant at Pittsburgh, Pa.

Meeting

(*Continued from page 43*)

to inform state societies, chapters, and members on society procedures.

II. *Committee Action*

A. The Committee has reviewed Professional Policies Nos. 1 through 17 as listed in the Professional Policies booklet.

B. The Committee has reviewed all Board actions involving Professional Policies for the year 1955-1956, as well as Board actions in this same area for the fall and spring meetings of year 1956-1957.

C. The Committee reviewed all Board actions involving Internal Administrative Policies of the Society through the spring 1957 meeting.

III. *Discussion*

Before undertaking the specific assignment of the Board to compile all actions involving Internal Administrative Policies, your committee developed a basic approach to be used as a guide. This approach was that the forthcoming booklet containing the Administrative Policies of the Society would serve as a companion piece to the present Professional Policies booklet; and that with these two publications any member of NSPE could readily inform himself, or equally important—nonmembers, just how the Society operates internally and what the Society stood for professionally. It is of course recognized that neither of these two publications represent the last word on the subject matter; that changing conditions will mean changing policies; but the feeling of your committee was that for the present this should represent the aggregate thinking of the Society on policy matters which it has considered.

If adopted, it is anticipated that the Administrative Policies formed by Board action will be combined in a single publication with those portions of the Constitution and Bylaws relating to internal administrative matters, using a common index. While numerous changes were made in the word arrangement of those policies formed by Board action, in no case was the substance of a policy changed. Those policies contained in the Constitution and Bylaws will, of course, be cited verbatim.

The Committee plans to review any professional policies adopted by the Board at the Dallas annual meeting for possible inclusion in the revised publication of the Professional Policies booklet.

Board Action: Report Approved

PUBLIC RELATIONS

In establishing successful public relations, there are two basic steps for an organization such as ours:

1. Render public service, not only in the normal course of professional practice, but also in extra curricular service to the public, from a professional point of view, on matters of public interest.
2. See to it that such public service rendered is appropriately publicized.

The first of these steps establishes a basis for public respect and appreciation while the second makes it known. Both are positive and creative. They must be directed toward a long-term program. Good public relations cannot be achieved overnight.

WHO IS THE PUBLIC

1. Present Members—A public relations, to be effective, must first aim to educate and influence the membership to a better appreciation of the aims and ideals of the Society; to greater public service activity; to an awareness of what the Society does for them as individuals; and to the real opportunity afforded by the Society for each member to be of service to his profession.

2. Prospective Members—Since any Society speaks more authoritatively with greater and greater representation, they must be considered a vital segment of the public. By directing a good public relations story to this segment of the public, the results should be Society membership growth.

3. Employers—Many in this group need to be persuaded toward a better understanding and thereby greater acceptance of our professional standards and requirements. It is possibly our largest segment of the public.

4. Educators in Engineering Colleges—These are the key individuals that must influence the development of professional concepts among students. The future development and recognition of our profession is basically in their hands.

5. Legislators and Government Officials—These leaders must have sound advice and counsel if they are to make sound laws and administer them wisely. A public relations program must attempt to give such advice on the basis of protection for the public and the profession.

6. General Public—This group covers the men and women who form the community in which the professional engineer lives and works. Our profession must handle itself right with the public. They must be influenced, by word and deed, toward a recognition of the professional engineer as a person whose attitude is guided by the ideal of a greater public service.

STATUS OF PUBLIC RELATIONS

To win public confidence and support is difficult. Holding it is a 24-hour-a-day job. Losing it is a swift debacle in which no man is any better than the last impressions he leaves.

There is a growing recognition on the part of leaders in all categories that every policy decision and every operating move has a public relations aspect that must be considered.

DEVELOPMENT OF BETTER PUBLIC RELATIONS TECHNIQUES

The three points that should be stressed in seeking to develop better public relations techniques are:

1. Decentralize NSPE's public relations approach.
   a. To each point of Society contact with that public to give a personal meaning to everything said and done.
   b. To each group of that public so as to pin-point the effort.
2. Master the sense of timing which knows exactly when to do what.
   a. When the governing group of the organization is required to take some step for the good of the Society or the profession which might annoy some of our public, a well-timed explanation before the fact will usually forestall criticism.
   b. Good timing of a move can enhance its public impact.
3. Develop an inquiring mind ever in search of new ideas for building the desired public understanding.

NEW APPROACH

1. NSPE to develop and furnish the tools.
2. Members—with the help of their chapters and state societies, to implement the program by diligent use of those tools.

SUGGESTED SOLUTION

1. Employ and develop a man for public relations at NSPE level. A young man seeking a career in public relations should be available at a reasonable salary. He should have at least a college background in this field. As he develops with the program his travel and contacts with the state societies could be increased.

2. Pin-pointing our program to the many publics should be carefully planned on a five-year basis. NSPE would develop and furnish the tools for at least one previously outlined public each year. This could be in the form of film strip with narration. The plan would also include an illustrated booklet to cover the subject to enhance discussion. This program would require a minimum of $10,000 to $15,000 each year.

3. The total program would start out at the rate of approximately $15,000 per year and increase at a pace calling for approximately $30,000 the fifth year.

4. A color movie in the important industrial employer field should be kept in mind continually as a possibility. This is particularly true should an industry or a group of industries see the value of our program.

THE PLAN IN ACTION

A good program or policy means little in public relations if nothing is done about it. What counts is how the program or policy is put into operation at the point of public contact.

What an organization grown large and wide spread usually needs most is to put public relations on a personal plan. Most people will listen to folks they know and trust. They pretty much make up their minds about an organization by what they know of the people in that organization.

The plan we have outlined will furnish the tools for an effective job pin-pointed to the public. This is perfectly all right as far as it goes, but it does not of itself supply the personal touch that is needed. *This premise makes it mandatory that the member, the chapter and the state societies must carry the responsibility of effective public relations.*

In the years ahead we shall have need for more good members in public relations than ever before. This means, that we, ourselves, must train them, *now.*

We must treat the member even better than was treated the prospective member. Public relations pin-pointed to the member will make him a friend of the Society and keep him that way.

Through public relations we must and will create a better understanding between ourselves and our public.

Board Action: Report Received

(*Continued on page 47*)

...NEW LITERATURE...

To help the offering firms determine which literature you require, when requesting an item, be sure to list all specifications shown . . . and say you saw it in the AMERICAN ENGINEER.

STEEL BUILDINGS — Cut-away drawings graphically showing the outstanding construction features of Stefco Standard Panel Type steel buildings, highlight a colorfully illustrated, four-page catalog now available from Stefco Manufacturing Company. The catalog also illustrates four types of Stefco Standard Panel Type buildings — double span, clear span, high center bay with leanto, and center bay with leanto along

with seven different window and door combinations. The catalog is available by writing: Nat Lehman, Stefco Manufacturing Company, P. O. Box 25, Cincinnati 36, Ohio.

—AE—

DRAFTING UNIT — A new efficiency drafting unit that provides a complete work station for engineers and draftmen is described in a new bulletin just issued by Stacor Equipment Co. Called the Stacor-Matic, the unit consists of an adjustable drafting table for one man and a reference area for the next in line. Besides supplying much-needed facilities, the bulletin shows how much space is saved by this combined unit, the time and steps saved in having material at each man's fingertips, and natural fatigue avoided by the convenience and mobility of the unit. Copies of the bulletin, together with prices and other details available from Stacor Equipment Company, 768-778 East New York Ave., Brooklyn 3, N. Y.

—AE—

STAINLESS STEEL — A 32-page booklet on stainless steel sheet and strip which gives detailed information on these products is now being distributed by Allegheny Ludlum Steel Corporation. The booklet has more than 20 tables including detailed data on a stainless steel finder, corrosion resistance of various stainless steels, fabrication properties, and weight tables per lineal foot in various widths and gauges. There are sections on the proper selection of stainless steel grades, and an industry index to applications in the automotive, food processing, dairy, chemical, textile, pulp and paper, laundry, and other industries. A copy of the booklet can be obtained by writing to the Advertising Department, Allegheny Ludlum Steel Corporation, Oliver Building, Pittsburgh 22, Pa.

TRUCKS & TRACTORS — The complete line of fork-lift trucks, straddle carriers, powered hand trucks and towing tractors produced by the Industrial Truck Division of Clark Equipment Company is described in a 16-page, four-color catalog published by the company. Every machine is illustrated. Fork trucks treated include the solid tire and pneumatic tire gas-powered models in the new Clarklift line, solid tire and pneumatic tire gas-powered models in the standard line, solid tire electric-powered models and the new line of gas and diesel-powered pneumatic tire "Rangers." Specifications given for each model include capacity, turning radius, width, length, fork length, lift heights and service weight. In a special section, 24 attachments for fork trucks are illustrated. A quickly read reference chart indicates which attachments are available for each fork truck in the Clark line. Copies of the catalog may be obtained by writing Industrial Truck Division, Clark Equipment Company, Battle Creek, Mich.

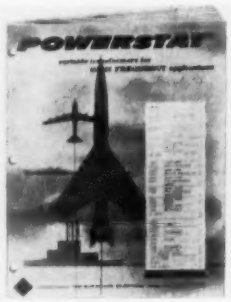
—AE—

PRODUCTS — Trent Tube Company, a subsidiary of Crucible Steel Company of America, has announced the availability of a 48-page product catalog for engineers, purchasing agents, and users of stainless steel and high alloy pipe and tubing. The manual describes Trent Tube products ranging in size from $\frac{1}{8}$ inch to 40 inches in outside diameter — the widest range in the tubing industry. Separate sections in the new manual describe Trent Tube's pipe and tubing for use in high pressure applications, aircraft, heat resistant tubing, beverage and dairy equipment, ornamental tubing, mechanical equipment, and shaped and formed tubing. The catalog also pictures the Company's large diameter tubing for such uses as pulp mill stock lines, waste disposal systems in chemical industries, exhaust stacks, and other applications. A copy of the catalog may be obtained by sending a request on company letterhead to L. E. Baker, Sales Supervisor, Trent Tube Company, East Troy, Wis.

—AE—

TURNPIKE — A new 12-page, two-color brochure has been published by the Medusa Portland Cement Company on the Ohio Turnpike. Entitled: "Medusa Helps Build Ohio's Magnificent Miles", its pages pictorially describe the turnpike as well as the 55 buildings required to operate it. The brochure also tells of Medusa's part in helping the Ohio Turnpike engineers and contractors finish this mammoth construction project by the projected completion date. The folder also lists the more than 50 contractors who built the Portland cement concrete pavement and bridges, and the contractors, architects and engineers responsible for the service plazas, maintenance buildings and administration building. A copy of the booklet can be obtained by writing Medusa Portland Cement Company, P. O. Box 5668, Cleveland 1, Ohio.

VARIABLE TRANSFORMERS — Bulletin P257H, a concise, illustrated 28-page bulletin offers features, ratings and complete data on a new standard line of POWERSTAT variable transformers for high frequency applications. Of particular interest to the aircraft, marine, missile and industrial fields, Bulletin P257H serves as a valuable engineering reference of variable transformers which deliver a continuously-



adjustable voltage from 400/800 cycle a-c power lines. Gives full information on 35 types of miniaturized manual and motor-driven POWERSTAT variable transformers for 28, 120, 240 and 480 volt, single and three phase service in ratings from 56VA to 8.7 KVA. For your copy write to The Superior Electric Company, Dept. 257, 83 Laurel St., Bristol, Conn.

—AE—

WELD FASTENERS — "Ohio Weld Fasteners—The Primary Fastener in Fastener Assemblies" is the title of a 40-page illustrated guide for design and production engineers concerned with metal fabrications and assemblies. Application data are given on ten different types of OHIO Weld Nuts which are applied by resistance welding. Also described are such stock parts for resistance welding aplication as brackets, bosses, clips, pads, knobs and handles. Specifications are given on screws and pins for weld application, also. Ask for Catalog No. 58. The Ohio Nut & Bolt Company, 33 First Ave., Berea, Ohio.

—AE—

OPERATIONS — A new 16-page brochure outlining the operations and services of the Portland Copper & Tank Works is now available from the South Portland, Me., fabricating company, it has been announced by Harmon Hugo, general manager. The illustrated booklet reviews company history and operating methods, and describes Portland Copper's technical advances in the fabrication of stainless steel and high temperature alloys in connection with its work for the aviation, pulp and paper, chemical, petroleum, textile and food & beverage industries. Copies may be obtained by writing to Portland Copper & Tank Works, Inc., 80 Second St., South Portland, Me.

These listings are informational only and are not an endorsement of the products, nor of the manufacturer's claims.

Meeting

(Continued from page 45)

YOUNG ENGINEERS

In this report we will discuss the progress being made toward two of the objectives of the Young Engineers Action Program. It is recalled that the entire action program consisted of three objectives as follows:

1. Establish November as Young Engineers Month
2. The formation of student chapters at colleges and universities
3. The organization of young engineers in the chapters.

The preparation of the kit for Young Engineers Month has been completed and the kit is now in the process of printing for distribution. All of the suggestions included in this Young Engineers Month kit came to us from the many chapters that carried out successful Young Engineers Month programs last year. Chapter officers and committees may be assured that these ideas have worked successfully in other chapters, and they should not hesitate to select those things that look best to them for their local situation for their use. We do wish to urge every chapter of our Society to give serious consideration for planning a Young Engineers program in 1957. We call on each director to call the special attention of his state and local chapter groups to the slogan which we want to have on everyone's mind next fall: "Remember November—Young Engineers Month."

The second point of the Young Engineers Program, the formation of student chapters at colleges and universities, is covered by a special committee under the able chairmanship of Professor Neils Thompson.

The third objective of the Young Engineers Program is the organization of a young engineers group in the chapters of our Society. Interest has been slow in developing in this undertaking. Just a very few chapters have reported any definite action. However, it is encouraging to report that, at the State Presidents' Conference of our Society a few months ago, there were a good many questions regarding the formation of young engineers groups at the chapter level; and, many of the secretaries and presidents seemed to be interested in going ahead. We realize that this kind of a program takes considerable time and effort in getting started, but we are beginning to wonder if there is something wrong with the plan.

In considering these questions, you may wish to recall that the reason behind the original proposal to organize the young engineers groups in the local chapters was for the purpose of giving the younger engineers more responsibility in professional engineering activities and to permit them to work on things that they are interested in themselves. The hope is, that by doing this, these young engineers will get more interested in the work of the Society and will encourage their young engineer friends to join with us. It has been pointed out that a real weakness in our Society is the low percentage of members in the younger age brackets.

Board Action: Report Received

REGISTRATION

RECOMMENDATION: That the attached three-part document entitled "The Future of Engineering Registration," consisting of a proposed ideal engineering registration law, a proposed revised model law, and a commentary be published for distribution as suggestions for consideration to the NSPE member state societies, state registration boards, deans of engineering, and engineering organizations interested in advancing the cause of engineering registration.

DISCUSSION: The background and history of the documents submitted with this report are set out in the introduction. The committee study and activity leading to this report have embraced two NSPE administrations. This project started in the 1955-56 administrative year under the Registration Committee, headed by Robert J. Rhinehart, of Arkansas. Upon his elevation to the NSPE presidency, Mr. Rhinehart appointed Russell G. Warner, of Connecticut, to carry forward the work. This was done in a most efficient and outstanding manner by Mr. Warner; and the Charleston, S. C., review meeting was presided over by him. Unfortunately, Mr. Warner was taken ill shortly after the Charleston meeting and had to resign his committee post. The current chairman and the other committee members wish to acknowledge with gratitude the important contributions of Mr. Rhinehart and Mr. Warner, who have both continued their keen interest in the work and made highly valuable suggestions after leaving the Committee.

It is our sincere hope that the attached report, which we have called, "The Future of Engineering Registration," will meet with the Board's approval and will be received by the engineering profession as a serious and well-thought-out attempt to advance the cause of engineering registration, and thereby, the cause of the engineering profession in its service to the public.

Board Action: Recommendation Approved

STUDENT CHAPTER SUBCOMMITTE

This Committee has been working since the last meeting on the assignment given it in October of last year. There are many aspects to the problem of the National Society of Professional Engineers sponsoring student chapters. The commitments on the part of our Society in this undertaking can be significant. This Committee believes that this step is most important. Therefore it has proceeded cautiously in the development of its plans, even though it realizes the need for haste.

This report contains a brief of the original Board action, tentative suggestions for requirements for student chapters, requirements for student members, privileges, dues and outlines of three publications. The material being submitted are not recommendations for final action, but is being furnished to stimulate discussion and to develop opinions.

Requirements for Student Chapters

Under the provision of Board action, chartering of student chapters has been authorized. After considerable study of procedures and requirements for student chapters, a tentative outline has been developed as follows:

Chartering of Student Chapters by State Societies

1. Petition by students and faculty sponsor to the state society.
2. States adopt own policy for chartering.
3. Student Chapter to be known as the ..... Student Chapter of the (state) Society of Professional Engineers.

Chartering of Student Chapters by National Society of Professional Engineers

1. At least one year of organized effort under a charter of a state society.
2. College to have curriculum or curricula accredited by Engineering Council for Professional Development.
3. Number of petition signers required are suggested in the four schedules below:

College Enrollment	*Number of Signers*			
	a	*b*	*c*	*d*
At least 200	10	10	20	20
200 - 400	20	20	30	40
400 - 600	20	30	50	60
600 - 800	20	40	70	80
Over 800	20	50	80	100

4. Petition to have an endorsement by a state society president or secretary, stating that the student chapter has a charter from the state society and has been in operation for at least one year.
5. On approval of a charter by National Society of Professional Engineers, the Student Chapter is to be known as the ..... Student Chapter of the National Society of Professional Engineers.
6. The granting of a charter will be subject to review of the student chapter's constitution and bylaws by the National Society of Professional Engineers Constitution and Bylaws Committee or by the National Society of Professional Engineers Young Engineers Committee.
7. To continue the charter in effect a student chapter will be required to make an annual report to the NSPE Young Engineers Committee.

Student Member Requirements

Student must be registered in a college of engineering and taking courses leading to a degree in engineering.

Privileges

1. To be issued an NSPE membership card.
2. To be sent the AMERICAN ENGINEER.
3. To be a participant in local, state and national meetings.
4. To be elected to serve on state student councils.
5. To have dues in NSPE reduced when one becomes an Engineer-In-Training member.

Dues

The dues shall be the total of those assessed by the student chapter, the state society and National Society of Professional Engineers. The NSPE dues shall be .....

(a) 0 (b) $1.00 (c) $2.00 (d) $3.00 (e) $4.00

Student Chapter Manual Outline

At the present time the committee is considering three publications, (1) Guide for Organizing Student Chapters and State Student Councils, (2) Student Chapter Manual of Operation, and (3) State Student Council Manual of Operation.

Board Action: Report Received

Zeder

(*Continued from page 16*)

is not the last, that this is but the opening shot in a general campaign to promote our own interest wherever and whenever we can.

The over-all result of this campaign is, to me, a shining example of how the two great forces of our society—government and private enterprise—can work in unison to promote the welfare of all. And when you consider that a small band of public-spirited engineers were the prime movers in this campaign, I think you will agree with me that some of us have broken out of the cocoon of self-interest and narrowness of viewpoint which was characteristic of engineers in the past.

This campaign also suggests the worth of even closer cooperation and liaison between university officials and those in industry who depend upon the universities for skilled manpower. Training young people for our profession is an educational undertaking that is out of pace with general education. Those in charge of educating engineers and scientists must be vastly more alert to change than those teaching courses in the classics or more static professions.

In order to do their job well, engineering schools must have their fingers on the pulse beat of the nation's industrial and scientific world. They must know the needs of industry—not ten or twenty years hence, but right here and now. They must be, in a sense, diagnosticians of today's scientific world, so that they can turn out enough trained men to man the front lines of our constantly advancing scientific frontiers. They must be able to modify their courses as quickly as more knowledge is unearthed; they must be able to improvise; they must be able to spot in advance probable trends in future demands for trained manpower. I suggest that one of the ways for them to keep their courses abreast of the times would be to maintain closer touch with industry.

It has been about ten years since Hiroshima. That day, August 6, 1945, will be recorded by historians of the future as the end of the Dark Ages. Terrible though they were, the events of that day announced to the world that man had at long last captured the power of the atom.

Of course, having such a stupendous concept thrust upon the average man without thought-preparation prevents his seeing the full meaning of atomic energy. But I doubt if its full potential is visualized fully even by the nuclear scientists. In this they are no different from other scientists who have penetrated the mysteries of our world. Do you suppose, for example, that Benjamin Franklin ever dreamed that the same force which he captured with his kite would ever power electric razors and television sets? Or that a relatively obscure German scientist named Zeidler knew in 1874, when he discovered DDT, that this new substance would enable future generations to combat such plagues as malaria? Yet it wasn't used as an insecticide until 1939.

But the average man's awareness of the import of atomic energy is growing every day. I think this widespread enlightenment can be attributed, in large measure, to today's scientists and engineers. Our position in modern society is such that we are looked to for guidance by the great mass of non-technically trained people. As we react to scientific advances, so they react, confident in the belief that we have the judgment, intelligence and training to evaluate them. Thus, we have become an opinion-forming group whose viewpoints influence the thinking of the nation. And herein lies another responsibility we did not have in years gone by, when the phrase "educated blacksmith" was still in currency. In those days, if an engineer's neighbor wanted his opinion it was usually about a plugged toilet or a cranky automobile.

ALMOST every day we are bombarded with news stories on atomic power. Some of them are rather spectacular. One appeared recently, for example, prophesying that the first atom-powered airplane would fly for two years without landing.

The news stories that deal only with the more spectacular aspects of nuclear power divert attention from the most meaningful, the most significant, contribution that atomic energy can make to the world. That is in promising to make obsolete every energy source that we use today.

If this occurs, think of how widespread and how sweeping would be the changes in our whole society and way of life! Engineering, as we know it today, would become as old-fashioned as a buggy whip. We would have to relegate to the historians' archives much of the knowledge we have painfully acquired through the years, and start afresh to create new machines and new methods adaptable to nuclear energy.

If I appear to be somewhat preoccupied with the matter of nuclear energy, there is a very good reason for it. A short time ago, I attended a meeting of scientists participating in the Phoenix Memorial project at the University of Michigan. This organization is dedicated to developing peaceful constructive uses for atomic energy, and is supported by the voluntary contributions of individuals and industry.

These nuclear scientists have developed a language all their own. To a layman like me, much of their discussion was as incomprehensible as if they were talking in Sanskrit. But I did manage to go away with a strengthened conviction that groups such as this are leading us into a more abundant way of life than we dreamed possible even ten short years ago.

This group already has accomplished much, and has done so with financial backing that seems puny by some standards. For example, the total amount of donations it has received is far less than the cost of a warship. Yet this group promises to achieve progress that will influence our lives more than any battleship in any war—and perhaps influence our society more than some of the wars of the past.

At present, it is working on such interesting projects

About the Author . . .

Mr. Zeder

James C. Zeder, vice president of the Chrysler Corporation was born in Bay City, Mich., April 17, 1900. Mr. Zeder received his B.S. degree in mechanical engineering from the University of Michigan in 1922. From 1922 to 1928, he worked at the Maxwell Motor Company, Handley Knight Motor Company and the Timken Roller Bearing Company. In 1928, he was made chief engineer at the Plymouth and DeSoto Divisions of the Chrysler Corporation. He has contributed greatly to the development of many Chrysler achievements.

In 1933, he was granted an honorary master's degree in M.E. by the Lawrence Institute of Technology, and in 1937 the University of Dayton awarded him an honorary doctorate degree. Mr. Zeder has served as national president of the Society of Automotive Engineers; is a member of the Finance Committee of the National Council of the SAE; member of the National Inventors Council; chairman of the Executive Committee of the Engineering Advisory Committee of the AMA; member of the Newcomen Society of America and Franklin Institute and life member of the American Ordnance Association. In recognition of his engineering achievements, he was chosen the 1951 Charles Edgar Hoyt lecturer by the American Foundrymen's Society.

as a study of radiation as a means to sterilize human bones for transplant operations; analyzine carbons as a technique for pinpointing the age of archeological specimens, and working with a "bubble chamber" to detect atomic particles by their various accelerations. But the continuing, fundamental goal is a general study of the laws of atomic energy, and the exploration of means to use this energy in a manner that will contribute to the welfare of all people.

There are many considerations of a philosophical nature that must be taken into account when we discuss atomic power. Personally, I have been deeply concerned with its moral implications, and with the circumstances surrounding mankind's first mastery of it. Did the bomb accomplish good or evil? On the one hand, it snuffed out the lives of 78,000 human beings; on the other, it precipitated the end of a war which would have taken hundreds and hundreds of thousands of more lives, had it been fought to a conclusion with traditional weapons.

WHY was it ordained that man should discover the secret of the atom in the midst of the most devastating war the world has ever known? Why did it come about at that particular point of time? And what deep meanings can we attach to the fact that it was the lot of the free world to discover it and not those godless nations which sought to destroy us?

These questions suggest that the lifting of the curtain on one of the deepest secrets of the universe was intended to serve a destiny higher than merely providing a more bountiful life for mankind.

If we assume the existence of a higher power—as nearly all do—it is reasonable to believe that this force was given to us as a defense against the godlessness and tyranny of a handful of evil rulers who threatened the world. It serves this purpose well.

But, like all such forces, nuclear power has no conscience. It can serve many masters. It can serve good as well as evil. It can destroy as well as build. To be a force for good, it must be guided by men abundantly endowed with integrity and virtue, by men who long to achieve the blessings it can bring, yet stand in dread of its ability to destroy.

Engineers and scientists will be just as influential in determining what use is made of atomic energy as any other group—perhaps more so. That is why I foresee for the future a vastly expanded role for engineers in every facet of life—industrial, political, ethical, and social.

And when this obligation becomes ours, we must be fully prepared to accept it and to discharge it with honor and intelligence. We will have strong voices in determining not only how mankind will continue his technological progress, but—in a very real sense—whether or not mankind will continue to live on the face of the earth.

This will be a weighty burden, and a challenge to a profession which just now is beginning to assert itself in society's political affairs. We can lay the groundwork now to prepare ourselves for the duties which lie ahead.

We can, first of all, see to it that more and more superior young people are enlisted in our ranks. We can campaign for broader engineering education which will prepare these young people for the greater burdens they will bear in future years. And, finally, we can adopt an underlying goal of self-improvement in an effort to provide the world with engineers whose professional skills are matched by their devotion to serve humanity by providing it with the tools for making a more bountiful and peaceful world. **End.**

(This article was based on a speech given by Mr. Zeder before the Michigan Gamma Chapter of Tau Beta Pi. —Editor.)

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What's New

This column describes new products of general interest to professional engineers. For further information, circle the item number on opposite page and mail to the AMERICAN ENGINEER.

These listings are informational and are not an endorsement of the products, nor of the manufacturer's claims.

LIGHT DUMPY LEVEL — Item 30

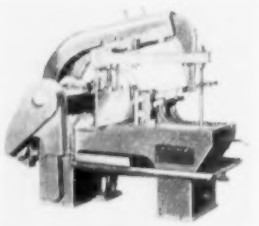
A Light Dumpy Level—in two models—has been introduced by W. & L. E. Burley. A low-cost, precision instrument, it is expected to find wide use as a builder's level. One model is without horizontal circle, the other has a circle for reading horizontal angles to five minutes. The level is made largely of high-strength aluminum alloys.

OPAQUE DRAWING FILM — Item 31

A material that is superior to conventional mounted paper, Stabilene Opaque Drawing Surface Film, has been announced by Keuffel & Esser Co. The basic use for mounted paper, which combines a high-grade paper with a muslin backing, is for drawings that are subject to frequent handling or alteration over a period of years. For this reason, mounted papers have always been judged by their tear strength, durability, flexibility, and flatness. In all of these qualities, the film is superior, claims K&E.

METAL CUTTING MACHINE — Item 32

Racine Hydraulics and Machinery, Inc., announces its new model 20-20 power hack saw machine which has a capacity of 20" x 20. This machine is hydraulically controlled, and the table top is only 31 inches from the floor. It incorporates a two-step poly Vee belt drive, giving a speed range of 35 to 115 strokes per minute. This unit is ideal for cutting large sized materials.

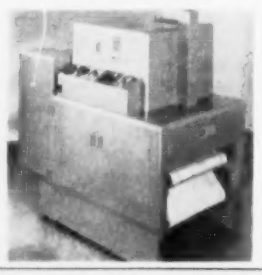


50-INCH LATHE — Item 33

A new 50-inch engine lathe, the Niles A-50—developed for high speed, high horsepower service with modern carbide tooling—has been introduced by Hamilton Division of Baldwin-Lima-Hamilton Corporation. Capable of accommodating a drive motor up to 100 horsepower, it can be furnished as a standard turning lathe or a combination boring and turning machine. Other options include use of either mechanical or electronic feeds and with or without thread cutting.

CONTINUOUS PRINTER — Item 34

A low-cost method of producing enlarged engineering drawings from microfilm has been developed. The printing is done from microfilm in a XeroX Copyflo 24-inch continuous printer, an automatic device that produces drawings up to two feet wide at a speed of 20 feet a minute. No ink is used. The prints are dry on emergence and may be used immediately.



PLATFORM TRUCK — Item 35

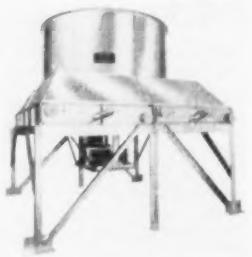
The completely new "Freighter" platform truck announced by Hyster Company is designed to transport loads of up to 4000 pounds safely and rapidly through confined aisles and crowded areas of terminals and warehouses. It has fully automatic drive, which results in smooth power flow and excellent "inching" qualities for precise load positioning.

ERASING MACHINE — Item 36

A new and superior electric erasing machine has been developed especially for the engineer and draftsman for faster erasing with minimum fatigue. Called the "Sovereign," the machine operates cool under heavy work conditions, has minimum torque and automatic stall control to protect drawings against damage from too heavy pressure. The "Sovereign" erasing machine is lightweight and easy to handle.

INDUCED DRAFT UNIT — Item 37

An induced draft, horizontal air discharge Fluid Cooler has been added by the Trane Company to its established line of dry type Fluid Coolers. The addition of the induced draft unit to their standard line will allow engineers more complete selection for this type of equipment, it was announced.

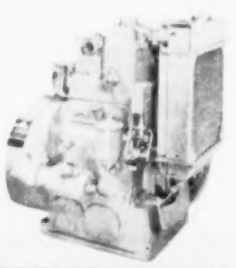


"DROP OUT" PENCIL — Item 38

A Mars product has been developed that is proving to be a boon to architects, engineers and draftsmen. Called the Mars Non-Print Pencil, its translucent, colored lead makes a line that "drops out" when a translucent original or master is reproduced by processes such as blueprint, brownprint and Ozalid. The "drop out" pencil provides complete freedom to sketch and make notes on drawings without having to worry about "cleaing up" before the drawings are reproduced. In addition, the pencil holds a fine point.

DIESEL AIR UNIT — Item 39

An automatic diesel-air compressor unit, called Diesel-Air, has been developed by Nordberg Manufacturing Company. The compressor unit has a capacity range of 30 cfm at 60 psi delivery and 26 cfm at 100 psi delivery. The Diesel-Air is designed for service in remote areas where commercial power is not available and rugged, dependable service is required.



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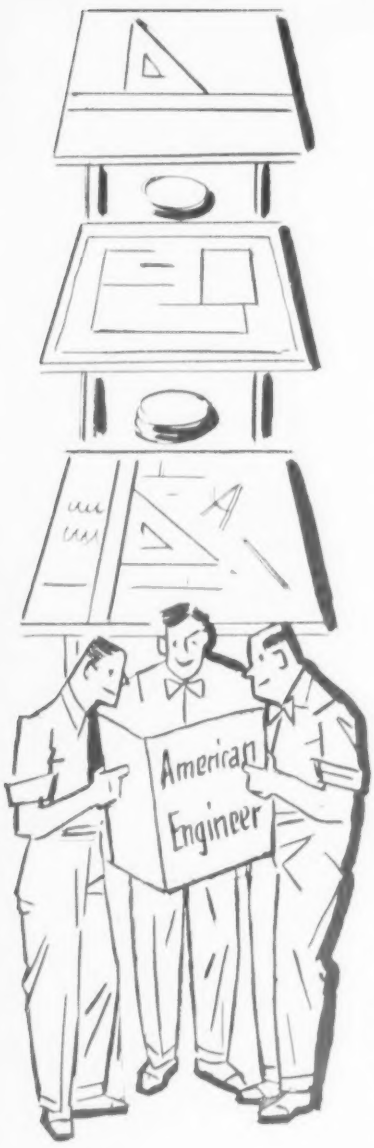

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